THE FARMERS' REGISTER.

VOL. IX. SEPTEMBER 30, 1841. No. 9.

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A DISCOURSE ON THE CHARACTER, PROPERTIES, AND IMPORTANCE TO MAN, OF THE NATURAL FAMILY OF PLANTS CALLED GRAMINEÆ, OR TRUE GRASSES.

(Concluded from last number.)

But, *revenons a nos moutons*—let us return to our *grass seeds.*

In some regions, where our common cultivated grains do not succeed well—either from the character of the climate or of the inhabitants—other grasses are employed as substitutes. The seeds of a tall aquatic grass, (*Glyceria fluitans, Br.,*) which grows spontaneously here as well as in the old world, are used, in the north of Europe, as an article of food, under the name of *manna seeds*, or *manne de Prusse.* In some parts of Asia, Africa and the south of Europe, food is prepared from the seeds of the several grasses which comprise the different kinds of *millet*, and a few others;* but they are all inferior in value to the poorest of our *cerealiæ*, or cultivated grains. The plant called *millet*, in this region (*Setaria Germanica? Beauv.,*) is valued chiefly for its *herbage*, and even that does not seem to command the attention of many farmers. The *true millet*—unknown in our agriculture—is believed to be a species of *panicum, (P. miliaceum, L.);* but there are other kinds, nearly allied to our broom corn, known by the names of Indian millet, (*Sorghum vulgare, Pers.,*) Guinea corn, (*Sorghum cernuum, Willd.,*) chocolate corn, (*Sorghum bicolor, Willd.,*) &c. These have been cultivated here, occasionally, but rather as articles of curiosity than of agricultural importance. Our common broom corn (*Sorghum saccharatum, Pers.,*) is cultivated, here, exclusively for the uses indicated by its popular *name*, as already noticed, though the stem contains much saccharine juice; and it is sometimes raised in Italy for the purpose of making sugar. The least valuable, perhaps, of our *cerealia*—or those grasses which are cultivated here, for the sake of the *seeds*—is the common oats (*Avena sativa, L.*) This grain is lighter and less perfect with us than it is in the north of Europe, and is almost entirely appropriated here to the feeding of domestic animals; but in less favored climes, as already remarked, it contributes largely, and directly, to the sustenance of man. One of the many sarcasms upon the Scotch, in which the great English lexicographer delighted to indulge, was his definition of *oats*, as the food of *horses in England*, and of *men in Scotland*—as if the effects of *climate* were a fit subject on which to taunt a people! The better quality of this grain is sometimes *malted*, when the demand warrants or rewards the labor, and a small portion is manufactured into *meal*, as an article of diet for the sick; but both these operations are very limited in our country.

Ascending in the scale of value, we next find barley, (*Hordeum vulgare, L.,*) a grain which, in some regions, is extensively used for *bread*, and more or less as food for horses and other stock; but, in our own country, it is almost exclusively employed in the manufacture of a rich potation, known to us all by the names of beer, ale and porter. The immense crops produced in the middle and northern states, are nearly all destined for the *breweries*,—a comparatively small portion being used in the distilleries. To prepare the grain for these establishments, it must undergo the process of *malting*, or incipient vegetation, in order to form the *sugar*, which is the source of the alcoholic strength of fermented and distilled liquors. It is found that when seeds begin to germinate, the farina or mealy portion is partly converted into sugar, by diminishing its carbon and augmenting the proportion of its hydrogen and oxygen; and this saccharine transmutation is precisely the operation of malting. The skill of the malster consists in arresting the germination at the critical moment, when the formation of sugar is most complete and abundant. This he does by drying it in a kiln.

The grain next superior in importance, being used to a considerable extent in making bread, is rye, (*Secale cereale, L.*) In our own state, from the force of custom, or prejudice, and the greater abundance of wheat, we are in the habit of undervaluing the bread made of this grain. But in many districts, where the soil is better adapted to the plant, rye is very generally used, and highly esteemed. It is also employed to a most mischievous extent, in the production of the ardent spirit called *whisky.* In this case the preliminary operation of malting, though sometimes practised, is generally dispensed with, as being too costly. The grain is merely chopped, or coarsely ground, and, in conjunction with a small per centage of malt, is subjected to fermentation; by which process, also, the farina loses a portion of its carbon, and becomes sufficiently saccharine to yield large quantities of impure alcohol. So great is the amount of ardent spirit procured from this grain, and so tremendous the abuse resulting from the practice, that it may be doubted, on the whole, whether rye does not contribute more largely to the *destruction* than to the *sustenance* of human life. Certain it is, that by the conversion of its wholesome farina into an intoxicating draught, it is made a potent instrument of physical and moral evil—a most prolific source of disease, misery and crime. All these mischiefs, however, arise from the misapplication and abuse of a positive good, for which man himself must be held accountable, and must expect the penalties inseparable from folly and wickedness.

The next most valuable plant, among the *cerealia*, is perhaps our Indian corn (*Zea mays, L.*) And, indeed, in the districts most favorable to its culture, it may be said to rival wheat it-

* The seeds of the following grasses, also, are more or less employed, in the old world, as substitutes for the grains known to us, viz.: *Triticum spelta, L.*, (which has been sometimes cultivated by the Germans in this state under the name of *spelt,*) *T. polonicum, L., panicum frumentaceum, Roxb., Eleusine coracana, Gærtn. and E. stricta, Roxb.*

self, in importance. Those who are not in the habit of regarding the vegetable kingdom with a botanical eye, may possibly be surprised to hear this plant enumerated among the *grasses :* yet, if they will advert to the definition already given, they will find the Indian corn to be a genuine member of the gramineous tribe. It presents, indeed, one of the few instances in which the stem is solid with pith, instead of being hollow, or fistular between the nodes ; but in every essential feature, it will be found, on examination, to be a true and undoubted grass.* The same remark applies to the broom corn, the sugar cane, and some others, in which the culm is filled with pith. In a district like this, where every occupant of a field, or garden, cultivates his crop of Indian corn, it would be wholly superfluous to dwell on the excellence and manifold uses of this universal favorite. Suffice it to say, that, while it is the most productive of our cultivated grains, every portion of the plant has its value, in rural and domestic economy. The large pithy culm, about the time of flowering, is replete with a rich saccharine juice,—from which, no doubt, a considerable quantity of sugar might be extracted. The entire *herbage* is therefore highly esteemed, as a nutritious food for cattle,—the ears or spikes of fruit afford a choice treat to the epicure, even before they arrive at maturity, and when fully ripe yield copious nourishment, in many forms, both for man and beast ; while the very *receptacles* of the seeds long considered as mere refuse, may be either ground with the grain as food for stock, or reserved as a convenient auxiliary fuel, in lighting up our anthracite fires. In Pennsylvania, and generally to the north, the farina of Indian corn is not extensively used by itself, in making *bread,*—probably for want of skill and usage : but whoever has experienced the hospitality of our fellow-citizens on the southern side of *Mason and Dixon's Line,* knows that *corn bread* is there admirably prepared and almost universally preferred to every other kind. The inhabitants of the west Indies, also, derive a large portion of their subsistance from our crops of Indian corn. It must be added, moreover, that a vast amount of this grain, in conjunction with rye, is converted by the distilleries into alcoholic poison, and its wholesome properties transmuted into the pestilent ministers to a depraved appetite. There are two other grain-bearing grasses yet to be noticed ; each of which is so eminently valuable to the human race, that it is not easy to say which is entitled to the highest position in the scale of importance. It will of course be understood that I refer to wheat, (*Triticum sativum, L.*), and rice, *Oryza sativa, L.*) In point of *intrinsic* value, I think there is no doubt that wheat may justly claim the precedence ; but as rice is believed to afford sustenance to a larger portion of the human family, than any other grain, we may allow it, on this occasion, to take rank as the first among the *cerealia,* and therefore, according to our arrangement of the subject, the last to be treated of. Wheat however is clearly the most important of the grains in the temperate zones, especially in the higher latitudes. The Romans gave the name of *Frumentum,* to all the grains which furnish bread, and in England the same grains are designated by the name of *corn ;* but these names were gradually, and by way of eminence, applied more particularly to *wheat*---as the great staple of bread stuffs. So the term *Froment,* is employed by the French, in a similar sense ; and there was formerly a dish, made of wheat boiled in milk, which the English called *Furmenty,* or *Frumenty ;* names evidently derived from the Latin word, *Frumentum.* Our colonial ancestors brought with them the English term, *corn,* as applicable to the European grains, and for the sake of distinction, they gave to the *maize*—which they found here—the name of *Indian* corn. In process of time, however, as the other grains had each a proper name, the generic term, corn, has come to be almost exclusively employed in the United States to designate the maize : and thus the word, like many others in our language, has by usage acquired a somewhat different meaning, on different sides of the Atlantic. I shall not trespass on your patience by enlarging on a subject so familiar to all, as is the value and importance of wheat. You are all aware, that in the greater portion of our happy country—especially in the middle and western states—it is one of the prominent objects of our agriculture. So long, therefore, as our people shall apply themselves to the tillage of the soil, we may reasonably hope to be exempted from that fearful calamity, a want of bread. In addition to the supply of food furnish-

* The position and structural aspect of the fruit-bearing spike, or *ear* in this plant—though so different from the prevailing arrangement, in other grasses—are yet rendered perfectly intelligible by the *Goethean* theory of the developement and modification of the vegetable organs. As the natural or normal *termination* of all stems, and branches—when fully developed—is in flowers and fruit,—it will be obvious, on examination, that, while the culm, in this instance, terminates as usual—though bearing only *staminate* flowers, the ears of Indian corn are, in reality, lateral *flowering branches,* on which the numerous pistillate flowers are concentrated into dense *spikes* ; each spike being completely invested by the sheaths of abortive leaves which originate at the crowded nodes of the short, peduncle-like branch. That this is the true character of the involucre or husks is appearent from the fact, that several of the lower, or exterior sheaths, are often tipped with the laminea of imperfectly developed leaves (analogous to the awns of the paleæ in many smaller grasses) ;—indeed, in some instances, those sheaths may be seen bearing large foliaceous expansions—almost as perfect as the leaves of the main stem. I have also observed culms which put forth a flowering branch of every node,—a little ear protruding from the axil of every leaf, from the lowest to the uppermost ;—though the usual number is two, or three, about the middle of the culm. The branch which supports the spike, is sometimes so much elongated that it becomes too weak to sustain its burthen erect,—in which case the mature ear is found drooping or pendulous by the side of the culm ; and occasionally, we find the spike itself ramifying,—i. e. secondary branches, or spikes, issue from the axils of the sheaths composing the husk,—so that there is formed a compound spike, or cluster of several small ears, on the same primary branch. There is also a variety of maize, in which the flowering spikes are still further developed ;—each floret and fruit on the receptacle, being completely segregated, sub-pedunculate, and provided with its own proper husks, or involucre,—while the *whole* are included in the common external envelope. Sometimes, even the flowers of the *tassel,* or racemose panicle at the summit of the culm, are so fully developed as to become *perfect,* and produce fruit.

ed by wheat,—I may remark, that our laundresses are chiefly indebted to its farina for that important article in their operations, known by the name of *starch*: and in the olden time—when, whatever may have been the interior condition of the head, fashion required the *exterior*, at least, to be conspicuously decorated,—the same amylaceous extract supplied the hair-dresser with his *powder*. As we have neglected the *external finish*, so elaborately bestowed on the pericranium, by our ancestors, it would seem to be but reasonable that we should give the more attention to the furniture *within!* Although capable of yielding alcohol—like all the farinaceous seeds—wheat is generally too valuable, as an article of food, to be desecrated by the process of distillation.

In our notice of the *cerealia*, the last in order—and, as is supposed, the first in importance, by reason of its extensive use,—is the rice plant (*Oryza sativa, L.*) The beautiful grain which this grass affords,—though considered by us, here, more as a delicacy than as a standing dish,—is the principal sustenance of millions of the human race. Being a kind of semi-aquatic plant, rice flourishes best in grounds that are low and marshy, or so situated that they can be overflowed—though there is a variety, called upland, or mountain rice, which is much cultivated: and every where, within the tropical, and adjacent regions, where circumstances are favorable to its culture, this admirable grass is to be found. In the southern parts of India, as I have had occasion to witness, the dense and squalid population is almost exclusively subsisted upon rice. The elegant preparations of this grain, which crown the tables of the wealthy in oriental climes, must be seen, and tasted, to be duly appreciated. It is also much used as food, in Roman catholic countries, in the time of Lent. This plant belongs to a small subdivision of the grass tribe, in which the *flowers* are often furnished with the extraordinary number of *six stamens*—or possibly they may each consist of *two florets* concentrated within the proper envelopes of a single flower, by which crowding process, all the parts of one of the florets, except the stamens, may be suppressed, or abortive; a phenomenon, of which it is believed there are many analogous instances in the economy of vegetation. The *seeds* are closely invested by the inner chaffy envelope, or paleæ, after the manner of oats and barley; and while thus coated are known in the east by the name of *padda*. They are deprived of this covering by passing them between millstones properly adjusted for the purpose, and are thus prepared for the culinary department, much in the same way that *hulled* and *pearl barley* are manufactured. The *albumen*, or farinaceous portion of rice, is of a remarkably pure white, almost translucent; and of a very bland, nutritious quality. The gluten which it contains, enables the Chinese to manufacture from it various ornamental articles of great beauty and delicacy. This gluten is also said to be an important ingredient in the preparation of *Japan paper*. The art of extracting alcohol from the seeds, has been applied to rice as well as to the other *cerealia*. The fiery liquor called *arrac*, the generic name in the east for alcohol, is obtained by distillation from rice, in conjunction with sugar, or the juice of some species of palm: and in China, an amber-colored wine is also made from that grain.

The last member of the gramineous tribe, which remains to be noticed on this occasion, is the sugar cane, (*Saccharum officinarum, L.*) This interesting plant more nearly resembles the Indian corn, in its structure and general habit,* than any of the other grain-bearing grasses; but, unlike them all, its value consists, not in its seeds, but in the rich saccharine juice contained in its pithy stem. It is found only in warm climates, and flourishes best in the deep rich soils within the tropics, or in the lower latitudes of the temperate zones. It is propagated by cuttings of the jointed stem, planted in rows somewhat after the manner of Indian corn. The diameter of the culm does not much exceed that of good specimens of maize,—while it varies in height from 8 or 10 to 20 feet, according to the character of the soil. As it is not cultivated for its seeds, it is of course rarely permitted to flower; but is gathered while the rich juices are yet diffused throughout the stem. When these juices have acquired the proper degree of maturity, the culms are crushed between rollers,—the saccharine liquid is expressed—and conveyed into boilers, for the purpose of driving off, by evaporation, the redundant watery portion. This being done to the proper extent, and the impurities duly removed, the sugar is precipitated in crystals,—leaving a dark rich syrup above, which is familiarly known to us all by the name of *melasses*. These crystals, when separated and drained of the syrup, are left in various conditions of purity,—and constitute the different sorts of our common brown sugar. Subsequent boilings of the syrup afford a crude precipitate, of inferior quality, known in commerce by the name of *Muscovado* sugar,—a term corrupted from the Spanish word *Mascabado*,—and which, itself, is derived from the phrase, *mas acabado*—signifying *more done*, or finished:—i. e. the sugar, in this case, is the result of a further and concluding process.† Our *loaf sugar*, and *candies*, are obtained simply by *refining* the aforesaid saccharine crystals still further; viz. by dissolving them again—separating all foreign matters from the solution, by means of lime, alum, white of eggs, and other clarifying materials—and then reducing the purified liquid to the proper state for a second crystallization. Thus are we furnished, by this magnificent grass, with the purest, most nutritious, and universally palatable, of all the ingredients that enter into the composition of our food. The large portion of the globe adapted to the growth of the plant, and the copious product of its juices, render it probable that the *cane* will ever be our principal resource for the supply of sugar. The *maple* may furnish a tolerable substitute to foresters, who live remote from the channels of commerce,—and systems of policy, or other considerations, may induce a partial resort to the *beet*, to obtain this delicious and indispensable commodity:—

* Although in the structure of the culm, and general external appearance, the sugar cane has some resemblance to Indian corn, the *botanical* characters of the inflorescence are more allied to those of *andropogon*, or what we denominate *Indian grass;* and hence it is arranged in the subdivision of the grasses, called *andropogoneæ*.

† "*Mascabado, adj.* que se aplica al azucar inferior que sale de la última cochura." *Diccionario de la Academia Espanola.*

but it may be doubted whether any, or even *all* the other species of the vegetable kingdom, can rival this single grass, in the production of sugar, —either in the quality, the quantity, or the cheapness of the supply. That the history of the plant and its products is closely interwoven with a melancholy tale of oppression, and human misery, is unhappily as true, as it is reproachful to our race; and it is no less true that the choice product of the cane—like that of its grain-bearing kindred—is often prostituted to the vilest and most mischievous uses: yet we must recollect, that these evils are the results of man's own folly and wickedness,—and are no more chargeable upon the blessings thus perverted, than they are imputable to the design of a bounteous Providence.

From the sketch now presented,—which I fear has been tedious, though extremely superficial and imperfect, I think it may be perceived, that the simple tribe of plants, technically called *grasses*, is not only one of the most abundant, but decidedly the most valuable, and important to man, of all the many natural families in the vegetable creation. That while its peculiar characters cannot fail to interest the lover of natural science, its uses, abuses, and manifold relations to the welfare of society, must ever give it a strong claim to the attention of the agriculturist, the philanthropist, and the political economist.

REMARKS ON DIFFERENT GRASSES FOR HAY AND PASTURE.

To the Editor of the Farmers' Register.

My crop of hay this year was composed of red clover, orchard grass, and green grass, separately grown. I have, for some time past, held red clover, for hay, in small estimation, and the experience of this year has increased its disfavor.

I finished cutting hay before the heavy rains in June, and had my hay cocked according to the method recommended in the first volume of the Farmers' Register, by raising the cocks on stakes. After the rains, I found that much of my clover hay had taken wet, and though I dried and housed it, as soon as I could, I sustained much loss. No injury was incurred by my orchard or green grass, though some of it remained out in cock for a month.

I am much pleased with my crop of green grass; it is the first I have seen cut, on the Eastern Shore, for hay; the season was not propitious, and the hay crop was not a full one. It is my purpose to improve the grounds on which it grew, to ascertain the product when compared with other grasses. I think there has been some suggestion in the Register about sowing and setting green grass, and perhaps it will be acceptable to your readers to know something of the production of green grass in my grounds. Some years ago I sowed a lot of seven acres in orchard grass, from which I cut crops regularly, and as the orchard grass has declined, the green grass has succeeded, and this year the green grass greatly predominated. The lot, preparatory to sowing it in orchard grass, was highly marled and manured, and has been since once top-dressed with barnyard manure. Mr. Stevenson informs us, that green grass (which he calls blue grass) delights in the naturally calcareous soils of Kentucky. Dr. Darlington, that it grows in the lands of Chester county, on which lime has been freely used, and I think it is not assuming too much when I say that, by the same means, green grass may be produced on the Eastern Shore of Maryland. Indigenous grasses of equal production and quality are always to be preferred to exotic; there is no cost in seed or sowing, and, above all, we avoid the pernicious weeds which come in foreign grass seeds.

I was induced to cut red clover this year to obtain seed from the second crop. When judiciously used as pasture, it is certainly a great improver of the soil; whether white clover would not answer as a substitute is still a subject for experiment. Last year I cut wheat from a field which for the most part had been marled; I permitted no stock to run on it till the middle of October; it was then rich in white clover, and some red, from former sowing. The field was pastured till the month of December. The stock was then excluded till the middle of May, and it was a fine pasture till late in July, when it was greatly injured by a drought, uncommon here at that season of the year. I entertain no doubt that for pasture white clover is greatly superior to red; in confirmation of my own experience I rely on the opinions of some Chester county farmers, and I am inclined to think that if the same attention was paid to our native grasses and our native stock, we should find them as valuable as the recently imported. One of my friends sent me last fall two Berkshire pigs; I put them in a sty, and had them well attended to, and turned them out when the grass was in full growth; since, they have been fed with my other hogs, and are now fat. A gentleman, who professes to be a judge, saw them a few days since, and he thought some of my other hogs, the common breed of the country, both in size and condition quite equal to them. If our breeding cattle were well selected, and well reared, from the stock of the country, perhaps we should have but little need of imported stock.

I entertain no hope that Maryland can at present do any thing by way of agricultural experiments. The internal improvers and projectors have laid upon her a debt of $15,000,000. Some of the schemes have proved abortive, and I apprehend time will develope more. The local authorities, by an act of the last legislature, are preparing to impose heavy taxes; whether there will be hereafter much alleviation, from the profits of rail-roads and canals, is a matter of doubt. Many of the improving companies are now issuing scrip to a large amount; and, upon their insolvency, it is probable Maryland will be called on to redeem it; and I suppose the meritorious consideration will be, that the money was expended on projects in which the state held a deep interest.

WM. CARMICHAEL.

Wye, Queen Ann's county, Md.,
August 14th, 1841.

ON TURNIPS.

From Johnston's Lectures.

The raising of turnips is of such vast importance in the prevailing system of husbandry, that

any improvement in the mode of culture must be of extensive and immediate benefit. Experiments so numerous and so varied have been made with this view, that it may almost seem superfluous in me now to make any further suggestions on the subject. But when experiments have been made with a view to one object only, it often happens in all departments of natural science, that as new views are advanced or more precise methods pointed out, it becomes necessary to repeat all our former experiments—either for the purpose of testing the results they gave us, or of observing new phenomena to which our attention had not previously been directed.

I. Numerous experiments, for example, have been made upon the use of bones in the raising of turnips, but they have been chiefly directed to economical ends, and so far with the most satisfactory results. But among fifty intelligent and thinking practical men, and who all agree in regard to the profit to be derived from the use of bones with the turnip crop, how many will agree in regard to the mode in which they act—how few will be able to give a satisfactory reason for the opinion they entertain! The same is true of theoretical chemists, some attributing their effect more especially to the earthy matter, others to the gelatine they contain. Dry bones contain about two-thirds of their weight of earthy matter, the other third consisting chiefly of animal matter resembling glue. Of the earthy matter five-sixths consist of phosphates of lime and magnesia, and the rest chiefly of carbonate of lime. Thus a ton of bone dust will contain—

Animal matter - - - -	746 lbs.
Phosphates of lime, &c. - -	1245 lbs.
Carbonate of lime, &c. - -	249 lbs.
	2240 lbs.

On which of these constituents does the efficacy of bones chiefly depend? Does it depend upon the animal matter?—This opinion is in accordance with the following facts:—

1°. That in the Doncaster report it is said to be most effectual on calcareous soils,—for in the presence of lime all organic matter more rapidly decomposes.

2°. That horn shavings are a more powerful manure than bones,—since horn contains only one or two per cent. of earthy matter.*

3°. That before the introduction of crushed bones, the ashes of burned bones had been long employed to a small extent in agriculture, but have since fallen almost entirely into disuse.

4°. That old sheep skins cut up and laid in the drills, have been found to yield as good a crop of turnips and after-crop of corn, as the remainder of the field which was manured with bones.

5°. That "40 lbs. of bone dust are sufficient to supply three crops of wheat, clover, potatoes, turnips, &c., with phosphates,"† while a ton or a ton and a half of bones, containing from 1200 to 1800 lbs. of phosphates, is the quantity usually applied to the land.

On the other hand, the quantity of animal matter present in a ton of bones (746 lbs.) is so small, and its decomposition so rapid during the growth of the turnips—while at the same time the effects of the bones are so lasting, and so beneficial to the after-crop of corn—that many persons hesitate in considering the great excess of phosphates applied to the land, as really without any share of influence in the production of the crops.

Thus *Sprengal*, an authority of the very highest character both in theoretical and practical agriculture, is persuaded that the phosphates are the sole fertilizing ingredients in bones; and he explains the want of success from the use of crushed bones in Mecklenburg and North Germany, on the supposition that the soil in those countries already contains a sufficient supply of phosphates, while in England generally they are deficient in these compounds.

Further, if the animal matter be the fertilizing agent in bones, why are they not of equal efficacy on grass land as upon turnips?

With the view, therefore, of leading to some rational explanation of the relative effects of the several constituents of bones, it would be desirable to institute comparative experiments of the following kinds:—

1°. With a ton of bones per acre.

2°. With seven or eight cwt. of horn shavings or *glue* per acre.

3°. With three cwt. of burned bones per acre.

4°. With thirteen cwt. of burned bones per acre.

The quantity of burned bones in No. 4 is that which is yielded by a ton of fresh bones; that in No. 3 is upward of five times what should be taken up by the crops—as great part of what is added must be supposed to remain in the soil, while *some must be dissolved and carried off by the rains.*

The results of such experiments as these, if made accurately on different soils, will lead us sooner to the truth than whole volumes of theoretical discussion.

II. Nitrate of soda has also been applied with great benefit in the culture of turnips. Some experiments, exceedingly favorable in an economical point of view, have been made by Mr. Barclay, of Eastwick Park, Surrey,* who found that one cwt. per acre, drilled in with the seed, gave as great a return of Swedes as 15 bushels of bones with 15 of wood ashes per acre; and when the nitrate of soda was sown broad-cast, from 20 to 25 per cent. more. In every part of the country, therefore, this substance ought to be tried. And as this nitrate is very soluble in water, and may therefore be readily carried off by the rain, and as only that which is within reach of the plant is of any avail, I would suggest that not more than one-fourth of the whole should be drilled in with the seed, for the purpose of *bringing away* the plant; and that after the thinning by the hoe, the rest should be strewed along the rows by the hand or by the drill. In this way the whole energy of the salt being expended where it is required, the greatest possible effect will be produced.

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*This, I believe, is rather a matter of opinion than the result of a sufficient number of actual trials. Some trials made by Mr. Hawden (British Husbandry, I., p. 395) gave results very unfavorable to horn shavings.

† Liebig, p. 84. The acre here spoken of is the Hessian, about three-fifths of the English acre. The English, therefore, will require 66 lbs.

* Journal of the English Agricultural Society, I., p. 428.

III. I have already stated the reasons which lead me to anticipate highly beneficial effects to vegetation from the use of sulphate of soda; I would suggest, therefore, a trial of this salt on the turnips also, at the same rate of one cwt. per acre, and applied in the way above recommended for the nitrate of soda. Of course the intelligent farmer will vary the proportions and mode of application of these substances, as his leisure or convenience permit, or as his better judgment may suggest to him.

THE GREEN SWARD AND BLUE GRASS OF VIRGINIA.

To the Editor of the Farmers' Register.

Farmville, June 16, 1841.

Though I have not the pleasure of a personal acquaintance with you, I hope I shall be excused for the liberty taken of sending to you, for your inspection, specimens of blue grass and green sward; grasses which have recently, to a considerable degree, attracted the attention of your readers. Upon these grasses I have no learned remarks to offer. I will merely state that they are both good pasture grasses; the blue grass decidedly superior on account of its hardihood, its weight and richness. The green sward of Virginia may be the blue grass of Kentucky; but the blue grass of Virginia, as you see from the specimens, is very different from the green sward. The green sward is seldom, in Virginia, mowed for hay. It is too light for this purpose. In the Valley of Virginia, the blue grass is often mowed, and makes the best of hay. In the market it brings a higher price than any other hay. From a residence of several years in the Valley of Virginia, I had an opportunity of becoming acquainted with the facts above stated.

I will further state that the green sward runs to seed early, and in a short time matures its seed, after which the straw or stalks are, as you perceive in the specimen, very light and chaffy.

The blue grass, though equally early as pasture grass is later in running up and seeding, and retains its properties for hay to a very late period in the hay-making season. It affords a good and heavy swath, and well repays the husbandman.

It is due to you, sir, that I give you my name, and this I do without reluctance, as my hasty remarks are not designed for publication. Very respectfully yours, J. H. C. Leach.

As we do not understand our correspondent as *forbidding* the publication of his letter, and as there is certainly no other reason why it should not be published, we have taken the liberty to do so, although he had not so intended.

Not having any botanical knowledge, and not being accustomed to distinguish any grasses except as they are seen growing, we preferred to wait and submit these dried specimens to a friend who is much better informed. The one grass, of which only we had any doubt, is the *poa compressa*, or blue grass of Virginia and Pennsylvania, and the other the *poa pratensis*, or green sward of Virginia and blue grass of Kentucky. Of course they are correctly characterized by our correspondent, according to the vulgar names of Virginia.

These specimens are of uncommon size for eastern Virginia. One of the green sward stalks we found by accurate measurement to be very nearly 2 feet 8 inches above the ground; and a stalk of blue grass to be nearly 2 feet 4 inches. They wanted less than a quarter inch of these precise lengths. Now if these grasses had been described as of such size, without exhibiting the actual specimens, few persons would have recognized them as the same grasses which are generally seen of so much smaller growth. Many of us are thus frequently misled even by the most accurate descriptions of plants, when the greatest heights are mentioned, as these so much exceed the ordinary and generally observed sizes. Of this, a remarkable case recently fell under our own observation. If 100 different farmers were separately asked what was the tallest sheep sorrel that they had seen, it is probable that very few would name a size more than a foot, and not one exceeding 18 inches. Yet we pulled and measured a bunch this summer, of remarkably luxuriant growth, of which the highest seed stem was 3 feet 4 inches above the ground—which we should be almost afraid to tell, except that we had a witness to the measurement. Now if any one were to describe this plant as growing sometimes above 3 feet high, it would cause every reader to pronounce at once that it could not possibly be the usually diminutive but powerful weed which is such a pest on acid soils.—Ed. F. R.

ON THE CONSTRUCTION OF ICE HOUSES.

From the Kentucky Farmer.

Lexington, Aug. 9, 1841.

Dear sir: The desire to contribute my mite, however small, to the support of your valuable paper, prompts me to send you the following remarks on the construction of ice houses; which, however, I beg you not to publish unless you think they are worth the space they would occupy in your columns.

The principles which should be kept in view in the construction of houses for the preservation of ice, are few and simple. The sole object of the structure being to prevent the passage of *caloric*,* from the earth, the air or the sun, to the ice; for if we could completely prevent the passage of that

* A definite term employed to designate the *cause* of the *sensation* called *heat*; which latter word is applied, in common *parlance*, both to the cause and to the sensation, leading sometimes to ambiguity.

agent into the ice, it would retain its solid form for any length of time.

The temperature of ice, when at its melting point, is 32°, Fahrenheit; in order that it may melt into water, it must absorb 140 degrees of caloric, sufficient to raise its temperature to 172 deg. but which only changes its form, from solid to liquid, without rendering it any warmer than it was before. The water draining from the melting ice being always at the same temperature with the ice itself. Without the accession of these 140 degrees of caloric, therefore, ice would never be melted into water.

Could we construct a house of materials that were perfect non-conductors of caloric, the preservation of ice contained in it would be complete. As, however, we have no perfect non-conductors we must select for our purpose those substances which conduct most slowly. The materials which experience has selected for articles of clothing, to preserve the natural temperature of our bodies, stand at the head of the list of these substances, and would also be the very best that could be used to protect ice from the surrounding caloric, were they not too dear and too perishable in their nature. As these, however, cannot be employed, for this reason, except in preserving small quantities for immediate use, we are obliged to resort to others less perfect but cheaper and more indestructible. Among these are the following, which I have placed in the order of their relative resistance to the passage of caloric, as determined by Count Rumford and others; those which oppose the greatest obstruction to its passage being placed first; viz:

Charcoal of light wood,
Dry wood ashes,
Tan bark,
Wood,
Sand,
Bricks,
Porous earth,
Porous rocks,
Dense rocks,

According to our data, one of the best modes of forming the walls of an ice house would be to make a frame work of timbers, say from 6 to 12 inches thick, to board it up on both sides of the timbers and fill the spaces between the boards with powdered-charcoal, dry wood ashes tan bark or saw dust; the floor and covering of the structure being protected in the same manner; and on filling it with ice a considerable thickness of straw should be placed at the bottom, sides, and top.

Where these materials are not easily to be obtained, logs of wood, built up in the pit, like a log cabin, make a very good substitute; more especially if filled on the outside, next the earth, with charcoal, ashes, saw dust, or tan bark. For this purpose charcoal and ashes are preferable to saw dust and tan bark, in consequence of their indestructibility.

Bricks and stones, although often employed in the construction of ice houses, are less proper than wood, unless lined on the outside with a sufficient thickness of charcoal, ashes, or other imperfect conductors.

Ice houses are frequently made, partly above and partly below the general surface of the ground; the top being arched over and the earth which was dug from the pit being thrown on the top of the structure in the form of a mound. This is a very good form, provided all the sides are protected, by non-conductors, from the caloric of the soil. The caloric of the sun's rays, absorbed by the surface of the porous earth in summer, passes through it with considerable difficulty, and travels slowly to the interior; passing off again in part, by the same slow process back to the surface to be dissipated during the cold of winter. In consequence of the difficulty with which it penetrates porous earthy matters, the daily changes of temperature cannot be observed at a greater depth than 3 or 4 feet, and the great annual vicissitudes are entirely lost before they descend 100 feet below the surface. The earth's surface, therefore, does not become heated or cooled rapidly to any considerable depth, and deep caves and excavations in the earth, preserve a scarcely varying temperature, which approaches that of the *mean temperature* of the region. This is the temperature of the water of deep wells, or of springs rising from some depth, which by comparison appears cold in summer and warm in winter. The *mean temperature* of this region is somewhere between 52 and 56 degrees, Fah.; twenty or twenty-four degrees about the melting point of ice; so that there is always caloric enough in the soil, below the surface, to melt ice, even during the winter season, and deep ice houses, whether covered or not with a mound of earth, hence require the protection of walls of non-conducting materials.

One of the most common causes of the rapid melting of ice in ice houses, is the want of sufficient drainage. If the water which drops from the ice or sinks from the surface of the soil, cannot drain away, but remains at the bottom of the house in contact with the ice, it serves as a medium though which the caloric of the earth passes with facility, causing the rapid melting and sinking of the ice. At the bottom of every ice house, therefore, if it is not in a very sandy soil, there should be a well of sufficient magnitude, or the floor should be raised to such a height above the earth as to prevent the water from ever coming in contact with the ice. Decomposition, and the formation of mephitic gases, as suggested by one of your correspondents, cannot take place under these circumstances: the most fermentable liquids do not begin their fermentation until their temperature is raised above 32 deg. which is that of the water dripping from ice.

Those houses which are not covered with a mound of earth, should have a good roof, or what is better, a tight room built over them, to prevent the circulation of air as much as possible, and the roof and sides should be rendered as nearly proof against the passage of caloric as straw, or other substances of the kind, fixed on the inside, as stated by Mr. Mentelle, can make them, and to prevent as much as possible the absorption of the caloric of the sun's rays, the whole exterior, roof and all, should be well whitewashed; it being a well established fact that much less is absorbed by a white surface than by a black one.

A great deal may be gained in the preservation of ice, by putting it up during the very coldest weather. For example, if ice be cut and exposed for a sufficient time to the air, when the thermometer is at zero, and packed away at that temperature, it must become heated up to its melting

point, 32 degrees above zero, before a particle of it will liquefy. But if packed in the house on a mild day, when in a thawing condition, it being already heated up to its melting point, the first degree of caloric that passes into it melts a portion. It has been already stated that 140 degrees are necessary to the liquefaction of ice, and it will be seen, therefore, that 140 pounds of ice, put up at the temperature of zero, is equivalent to 172 pounds which is packed in a melting condition.

The form of an ice house is by no means a matter of indifference. That which presents the smallest external surface is theoretically the best; therefore, other things being equal, a globular form would be the most proper. This, however, is not a convenient one to construct and hence the truncated cone, or square, are those most frequently adopted, and answer sufficiently well. The worst possible form would be a long narrow one.

ROBT. PETER.

WHEAT STRAW FOR IRISH POTATOES.

From the Kentucky Cultivator.

The best use I have ever made of wheat straw, and I think it the most profitable use that can probably be made of it, is as follows: and although this way of using it is not new, yet many have not tried it.

The ground being well broke up, run it off in rows of the usual width, just sufficiently deep to cover the Irish potatoes; plant them as usual, and cover them. Now cover the ground with straw about three feet deep, and if the straw will not hold out to cover them all this deep, the deficiency may be made up with leaves. In this way the potatoes may be planted very early. It is known that when potatoes are bitten by frost, they never do well. In this way, however early they are planted, they will seldom come through the straw before the danger of the frost is over. If they should, however, all that is necessary is to cover them over as they come out with more straw or leaves; the ground being covered three feet with straw, a kind of hot or forcing bed is produced, and although the tops do not come through the straw, yet they are growing finely a long time before they would grow if planted in the common way. Once planted, they require no working or further trouble; the produce is astonishing; those who have not tried could not believe that such a bountiful crop could be made with so little labor. They can be taken away as required, there being no danger of their remaining as they are till planting time, perfectly sound. I have noticed, in taking up a whole square of them to plant, that I did not see one unsound potato. It is a common opinion that potatoes will not do well unless the planting potatoes are brought from the north. Seed potatoes planted in the common way I have no experience of, but if planted and saved as directed above, we can make and save as good potatoes at home, either for planting or eating, as any part of the world can. Many believe that whole potatoes do better when planted than cut potatoes. I have tried this several times, both planted as usual and with straw. I have planted one row with the largest whole ones I could find, and another row of potatoes cut very small; the tops of the whole potato will grow very large, but I never could distinguish much if any difference in the produce. I have thought the rows of cut potatoes best, but the difference was so small that I do not feel certain. It matters not how close the tops of plants are, so the roots have sufficient distance.

Now although we have, by thus employing our wheat straw, made the largest crop of potatoes with the least labor, yet we have only got part of the benefit to be derived from the straw. When all the potatoes are removed, if all the straw was also taken away, the ground, from being so long covered, will be found rich. The quantity of straw on the ground, after taking up the potatoes, is so great that it cannot be ploughed; one half or more should be carted away, this might be used to cover another crop of potatoes, or put in the manure lot; now sow some corn on the ground and turn in the flock of hogs. They will, in searching for the potatoes and corn on the ground, root up the straw and earth and mix them together, so that the plough will go through it without difficulty; this planted in corn will make such a crop as will fully pay for all the labor. The best corn I have ever made was thus produced. But, alas! all the ground receives from this management this one crop of corn takes away; the next year, when planted in corn, the produce is little better than common. But how shall we make a better disposition of our straw? In the first place we get a most bountiful crop of potatoes without the trouble of working them; we then take away sufficient straw to cover nearly half as many potatoes for another crop, and then the ground put in corn will make a splendid crop.

ROBERT R. HARDEN.

Clarke, Ga.

[When residing in the country, we raised our small crops of potatoes for the table on the general principle of the plan above mentioned, that is, by covering with straw, or pine leaves, and using no tillage after the ground had been well broken at first, and the potatoes planted. We preferred pine leaves to straw, not only for being cheaper, but because being poorer and less putrescent, they lasted longer unrotted, and therefore operated better mechanically. But we never covered as deeply as three feet, nor perhaps more than a foot at one time, and therein we doubtless erred. This plan was also described from practice, and recommended by a correspondent at page 214, vol. I. of Farmers' Register. Our own practice was only for the few last years of our residence in the country. The products were never ascertained by actual measurement, being mostly consumed at table while growing, or remaining in the ground; but no question existed of the superiority of both the quantity and quality of the crop, and of the greater cheapness of the mode of culture.

For the first commencement, the seed potatoes

may be planted and covered with earth very slightly, (and perhaps no such covering is necessary,) on well broke ground, at any time from November to March, for the early crop; and then cover the whole thickly with straw, pine leaves, or any such open material. (Might not saw-dust answer well, where obtained in plenty from a saw-mill?) Nothing more is needed until the largest potatoes are fit to be eaten. Then, instead of having to dig them, and to waste the smaller to get a few of the largest, the litter may be gently lifted, and each cluster of potatoes be seen and handled, and the largest plucked from the stalk, leaving the smaller undisturbed to grow. Each cluster will be found above the ground, and appearing like a bunch of grapes.

For the second crop, when removing the first in October, no preparation was made except to leave in place, as seed, enough of the smaller potatoes. The earth was so soft and mellow as to need no breaking. The old litter was replaced as each row was gathered and again planted, and enough of additional litter added afterwards. Even when it was designed to remove all the crop, and to change the planting ground to another place, so many plants sprang up through the litter next spring, from the many small tubers left by carelessness or accident, as to produce a middling crop in quantity, (it being too thin set,) and of roots much earlier and larger than the new and designed planting. Indeed there might be thus kept a perpetual potato patch, with very little planting, no culture, and no subsequent manuring other than the leaves, but for one objection, which will usually be found to be serious to the third successive crop. This is, that the field mice, and other such vermin, will have so increased in the excellent and safe quarters furnished to them by the litter, that the crop will be much injured by their depredations.

This plan must be better for southern than for more northern regions, as the thick cover of leaves preserves both more moisture and a much cooler temperature in the heat of summer; both of which are so necessary to the best condition of the Irish potato crop.—Ed. F. R.

VATS FOR WATER ROTTING HEMP—THE IMPORTANCE OF THE BUSINESS.

From the Kentucky Farmer.

Lexington, Aug. 9th, 1841.

Dear sir:—I beg leave to lay before you a few suggestions relative to the promotion of the great object I have in hand—the water rotting of hemp.

Those farmers who have not the convenience of water in small spring branches, streams or ponds, can obviate the difficulty by constructing vats made out of plank, at a respectful distance from their dwellings. Let them make two vats, say 20 by 40 feet and leave an incline, that when the hemp has undergone its solution in the upper the water can be let into the lower. By this means one vat of water will rot three vats full of hemp.

To obtain the water to these vats I would recommend a small lifting pump which has been invented by Mr. Warner of this city; also a pump that is manufactured in Cincinnati, which the firm of Messrs. Dudley have on Main street. Either will answer the purpose to draw the water out of a well or a spring and convey it to the vats by small wooden troughs.

A farmer having fifty acres of hemp, can with ease, and with no interference, water rot say one half of his crop, the largest of his hemp, and dew rot the balance, which will increase the amount of his crop of hemp in value 33⅓ per cent. For instance, a crop of hemp of fifty acres averaging 600 pounds to the acre, dew rotted, at $5 per 112 lbs. will amount to $1300. The same crop one half water rotted, will amount to $1900. This can be done with little trouble, and divide their business in the preparation of their hemp crop, and will bring their staple earlier to market, which will also produce them an established price, and enhance the value of their lands.

These small pumps can be obtained with a proportion of hose to them, for $75. The cost of this is trifling in comparison to the gain of water rotting.

The hemp grower not only gains by the advance in price, but he has many advantages. His hemp before the spring is open, is out of his way, and delivered, and he is prepared to attend to the necessary arrangements of his farm; such as repairing his fences, and many other matters, which from my observation, as I pass through the farms, are very necessary.

A farmer can prepare for water rotting a crop of hemp upon the plan I describe, and it will not cost more than $125 including pump. This is for the first year. The second, the cost is nothing, and with two hands this quantity can be rotted by commencing the first of September. After it is rotted, (which will be about the middle of October) by the first of December, with additional hands for breaking, he has his hemp delivered and is in possession of its value. What an important matter this is to the farmer. If they would enter into it with spirit, there will be always a steady market at not less than $9.00, as the amount required for our navy and commercial enterprise is about 12,000 tons yearly. Independent of this, it will cause eastern capitalists to embark in the enterprise of establishing factories for the manufacture of sail cloth, &c.

I submit this to the hemp growers' consideration, and trust it will encourage them to prompt action in the promotion of this great national object; viewing it not only as promoting national independence but as a means of domestic independence to the present and future generations.

David Myerle.

PARTICULARS RELATIVE TO WATER ROTTING HEMP.

From the Flemingsburg Kentuckian.

After cutting young hemp let it be tied in small bundles with two bands, one at the buts and the other at the tops. Rye straw for bands is preferable.

Allow your hemp to lay two or three days for drying, if the weather is favorable, before putting into the pools, say a sufficient time to beat the leaves off.

Select all the large hemp by itself, it will produce a more regular rot. I recommend the short or that under five feet to be dew rotted for bagging purposes.

Avoid getting your hemp wet with rain. If your pools will not receive your whole crop, haul it near your pools and have it stacked.

Place your hemp in the pools carefully, but and tops to the height of your pool; lay small plank and weight it with rock or timber, then let your water in.

To ascertain when your hemp has a sufficient rot rub your hand on the surface of the stalk, and if the roughness has left, it may be taken out.

When rotted, spread it carefully upon the ground, turning it, and when perfectly dry place it in shocks or ricks. It is then ready for breaking at any time. A temporary shed near the ricks would be found a great convenience, as the hands could brake out all weather; cracking it in wet weather and cleaning it in dry.

Do not apply your brake too frequently to the hemp, but shake it. By beating it too much it produces tow. DAVID MYERLE.

OF ATMOSPHERICAL MOISTURE AND TEMPERATURE.*

From Lindley's Horticulture.

The constituent parts of the atmosphere that surrounds us are either the same in different regions, or the differences, if any, are not appreciable by chemical processes. It is far otherwise as regards temperature and humidity, which are so intimately connected that they cannot be considered apart from each other.

From what has been already stated it is apparent that of the vital functions of plants none are more important than those of perspiration and evaporation; and that, while a certain amount of loss of their fluid particles is necessary, a great excess or diminution of the loss must be injurious. Although the solar rays appear to be the immediate cause of perspiration, which proceeds in proportion to their intensity, yet this action is necessarily modified by the state of the medium, that is, of the atmosphere, which surrounds them: in proportion to its heat and dryness will their power be augmented, and in proportion to its cold and moisture diminished. The physiological effect of an excessive augmentation of perspiration is to dry up the juices and to destroy the texture of the leaves; on the other hand, an excessive obstruction of that function prevents the decomposition and assimilation of the fluids, and the formation of new organised matter, as well as of the secretions peculiar to a species. A state of the atmosphere, therefore, which is most favorable to the maintenance of the perspiratory action in the most healthy state, is that which it must be the business of a gardener to secure by all the means in his power.

Among the hygrometers intended for measuring the quantity of elastic vapor in the atmosphere, the most convenient for use is that invented by Professor Daniell. In this instrument, the amount of moisture in a given atmosphere is indicated by what is called the *dew-point;* that is to say, by the point of the thermometric scale at which the cold is sufficient to cause a deposition of dew; the amount being calculated by the difference between the natural temperature and an artificial temperature created for the purpose of determining the point at which the elastic vapor of the air is precipitated by cold. "The natural scale of the hygrometer," says Mr. Daniell, "is included between the points of perfect dryness and perfect moisture; the latter, of course, being that state of the atmosphere at which the *dew-point* coincides with the temperature of the air. The intermediate degrees may be ascertained by dividing the elasticity of vapor at the temperature of the dew-point, by the elasticity at the temperature of the air: the quotient will express the proportion of moisture actually existing to the quantity which would be required for saturation; for, calling the term of saturation 1.000, as the elasticity of vapor at the temperature of the air is to the elasticity of vapor at the temperature of the dew-point, so is the term of saturation to the actual degree of moisture."

By means of this and similar contrivances,* we are at all times able to ascertain exactly the quantity of water that exists in an elastic state in the air.

In this country, the changes of moisture are said to extend from 1.000, or saturation, to .389, or even so low as .120, under a south wall, for a short space of time; "a state of dryness which is certainly not surpassed by an African harmattan," but one which produces less disastrous consequences, because it is accompanied by a far lower temperature and a weaker solar radiation. The mean degree of moisture of the air near London has been found by Mr. Thompson to be, .897, on an average of ten years, while the mean temperature is 50.62:† in other parts of the world it is very different; and the amount of those differences, together with the means of imitating them artificially, constitutes one of the most delicate and difficult parts of the gardener's art. All that relates to this subject, however, to be treated use-

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* This subject has already been fully treated by Professor Daniell, in his excellent paper, "On Climate with regard to Horticulture," published in the *Transactions of the Horticultural Society*, vol. vi. p. 1. It is impossible for any one to discuss the same topic without profiting largely by this important treatise, which I have very much followed in the present chapter.

* Other hygrometers have been invented to answer the same end; but, as Mr. Daniell's is that most eligible in this country, I have thought it more convenient to confine my observations to it.

† See the various meteorological journals published by the Horticultural Society, in their *Transactions*, from the year 1826 inclusive.

fully, must be considered in a very special way, and in such detail as can only be expected in a separate work upon the subject. An idea of the difference between the atmospherical moisture of London and that of other parts of the world may, however, be collected from the following table, showing the amount of rain that falls in a few different countries :

	Inches per annum.
London . .	24.01 average of 10 years.
St. Petersburg .	16.
Algiers . .	27.
Fattehpúr (E. Indies)	35.94 average of 4 years.
Madeira . .	31.
Ságar (E. Indies)	from 31.15 to 64.76
Bahamas . .	54.99
Calcutta . .	from 59.83 to 81.
Ceylon . .	84.3
Macao . .	from 48.8 to 107.3
Equator . .	96.
Coast of Malabar .	123.50 average of 14 years.
Grenada . .	126.
Leogane, St. Domingo	150.

Bengal, 20 to 22 inches in a single month.

Bombay, 32 inches in 12 days.

Tavoy, 203.5 inches in six months ; as much as 8.5 in a day (July 31, 1831.)*

We possess, to a certain extent, the power of modifying the moisture of the air even in the open air, and have almost complete control over that of glazed houses.

It is found by experience that the effect of wind is to increase the dryness of the air, and, consequently, the perspiration of vegetable surfaces. "Evaporation," says Mr. Daniell, "increases in a prodigiously rapid ratio with the velocity of the wind ; and any thing which retards the motion of the latter is very efficacious in diminishing the amount of the former. The same surface which, in a calm state of the air, would exhale 100 parts of moisture, would yield 125 in a moderate breeze, and 150 in a high wind." Hence the great importance, in gardens, of walls and screens, which break the wind, and keep the air in repose in their vicinity. The difference between the effect of a given amount of cold upon the blossoms of exposed fruit trees, and those of the same species trained upon walls, is well known ; and appears to be owing to this circumstance much more than to any difference of temperature in the two situations.†

It is to be remarked that the easterly winds are, in this country, both the coldest and the driest. Mr. Daniell tells us that the "moisture of the air flowing from any point between N. E. and S. E. inclusive, is, to that of the air from the other quarters of the compass, in the proportion of .814 to .907, upon an average of the whole year ;" and Mr. Thompson has found the hygrometer to indicate not uncommonly from 20° to 30° of dryness, during the long prevalence of the north-easterly winds in spring. At the same time, the air is very cold, the effect of which is to cause the sap-vessels of the stem to contract, and refuse to convey their fluid ; so that the blossoms of fruit trees in a north-east wind, while they are robbed of their fluid contents by evaporation, can get no assistance from the roots through the stem, and necessarily perish. I find, however, from Mr. Thopmson's observations, that the greatest dryness we experience in this climate is not when the wind is in the east, but when it is in the south. For example : in nine years, between 1826 and 1834, the four driest days were, in the year 1834, in June, when it was 33° on the 1st, 35° on the 2d, and 31° on the 21st ; on the 1st of June, 1833, it was 30°, and always with a south wind ; and, during the whole of those nine years, there was but one other day on which the dryness was found as high as 30°, namely, on the 10th of April, 1834, with a north-east wind. The duration of dryness with a south wind was, however, very short, not exceeding one or at most two days, and was invariably accompanied with great heat and followed by heavy rain ; while the north-easters last for weeks, without rain and with a comparatively low temperature. The following statement by Mr. Thompson puts this in a clear light. There occurred between 1826 and 1834 inclusive,—

Wind North .	.	7 days above 20°	of dryness.
N. East .	114	39 do.	do.
East		48 do.	do.
S. East .		27 do.	do.
South .		35 do.	do.
S. West .		30 do.	do.
West .		35 do.	do.
N. West .		22 do.	do.

These facts sufficiently explain the fatal effects of certain winds upon vegetation, the small comparative value in this country of walls with north and east aspects, and the general want of success that attends late spring planting. Here, also we in part discover an explanation of the utility of shades interposed between the sun and plants newly committed to the earth ; they not only cut off the solar rays, but also intercept currents of air, and thus diminish the amount of perspiration by two opposite methods.

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As to temperature in the open air, unconnected with atmospherical humidity, there seems to be no means of regulating or modifying it to any considerable extent. In some respects, however, we have even this powerful agent under our control ; but, in order to exercise such control, it is necessary to understand correctly the theory of what is called radiation, which cannot be better explained than in the words of Mr. Daniell. "The power of emitting heat in straight lines in every direction, independently of contact, may be regarded as a property common to all matter ; but differing in degree in different kinds of matter. Co-existing with it, in the same degrees, may

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* [The average fall of rain (and snow) in the state of New York, for 14 years (1826—1839 inclusive, (as deduced from observations made under the direction of the regents of the University, and collected in their Report, presented March, 1840, is 34.40 inches. The highest average (from 54 stations) for any single year is 44.40 (A. D. 1827) ; the lowest (for 1839) 32.10 inches. A. G.]

† This has been illustrated by Mr. Howard, in the results of some interesting experiments made by him on the annual amount of evaporation. During three years, in which the evaporating gauge was placed forty-three feet from the ground, the annual average result was 37.85 inches ; during other three years when the instrument was lower and less exposed, the average was 33.37 inches ; and when the gauge was upon or near the ground, the annual average was only 20.28 inches, or little more than half the amount evaporared in a free and elevated exposure.

be regarded the power of absorbing heat so emitted from other bodies. Polished metals and the fibres of vegetables may be considered as placed at the two extremities of the scale upon which these properties in different substances may be measured. If a body be so situated that it may receive just as much radiant heat as itself projects, its temperature remains the same; if the surrounding bodies emit heat of greater intensity than the same body, its temperature rises, till the quantity which it receives exactly balances its expenditure, at which point it again becomes stationary; and if the power of radiation be exerted under circumstances which prevent a return, the temperature of the body declines. Thus, if a thermometer be placed in the focus of a concave metallic mirror, and turned towards any clear portion of the sky, at any period of the day, it will fall many degrees below the temperature of another thermometer placed near it, out of the mirror; the power of radiation is exerted in both thermometers, but to the first all return of radiant heat is cut off, while the other receives as much from the surrounding bodies, as itself projects. This interchange amongst bodies takes place in transparent *media* as well as *in vacuo*; but in the former case, the effect is modified by the equalizing power of the medium.

"Any portion of the surface of the globe which is fully turned towards the sun receives more radiant heat than it projects, and becomes heated; but when, by the revolution of the axis, this portion is turned from the source of heat, the radiation into space still continues, and, being uncompensated, the temperature declines. In consequence of the different degrees in which different bodies possess this power of radiation, two contiguous portions of the system of the earth will become of different temperatures; and if on a clear night we place a thermometer upon a grass-plat, and another upon a gravel walk or the bare soil, we shall find the temperature of the former many degrees below that of the latter. The fibrous texture of the grass is favorable to the emission of the heat, but the dense surface of the gravel seems to retain and fix it. But this unequal effect will only be perceived when the atmosphere is unclouded, and a free passage is open into space; for even a light mist will arrest the radiant matter in its course, and return as much to the radiating body as it emits. The intervention of more substantial obstacles will of course equally prevent the result, and the balance of temperature will not be disturbed in any substance which is not placed in the clear aspect of the sky. A portion of a grass-plat under the protection of a tree or hedge, will generally be found, on a clear night, to be eight or ten degrees warmer than surrounding unsheltered parts; and it is well known to gardeners, that less dew and frost are to be found in such situations, than in those which are wholly exposed." (*Hort. Trans.*, vi. 8.)

These laws plainly direct us to the means we are to employ to moderate atmospherical temperature. A screen, of whatever kind, interposed between the sun and a plant, intercepts the radiant heat of the sun, and returns it into space; and thus, in addition to the diminution of perspiration by the removal of a part of the stimulus that causes it, actually tends to lower the temperature that surrounds the plant. In like manner, the interposition of a screen, however slight, between a plant and the sky, intercepts the radiant heat of the earth; and, instead of allowing it to pass off into space, returns it to the ground, the temperature of which is maintained at a higher point than it otherwise would be. Hence it is that plants growing below the deep projecting leaves of houses, or guarded by a mere coping of thatched hurdles, suffer less in winter than if they were fully exposed to the sky.

It is also obvious from what has been stated, that plants growing upon grass will be exposed to a greater degree of cold in winter than such as grow upon gravel: but it does not therefore follow that hard gravel is, with respect to vegetation, a better coating for the surface of the ground than turf; it has its disadvantages as well as its advantages, and the former probably outweigh the latter. Its superior heating power is its only advantage; the objections to it are, its dryness in summer, and its comparative impermeability to rain, so that it causes the force of perspiration to be inversely as the absorbing power of the roots.

It is well known that blackened surfaces absorb heat much more than those of any other color; and it has been expected that the effect of blackening garden walls, on which fruit trees are trained would be to accelerate the maturation of the fruit: but, notwithstanding a few cases of apparent advantages, one of which, of the vine, is mentioned in the *Horticultural Transactions*, vol. iii. p. 330, this has been, in general, found either not to happen at all, or to so small an extent as not to be worth the trouble. It is true that so long as the wall is but little covered by the branches and leaves of a plant, the absorbent power of the blackened surface is brought into play; but this effect is lost as soon as the wall becomes covered with foliage. In the early spring, however, before the leaves appear, the flowers are brought rather more forward than would otherwise be the case; and in the autumn the wood certainly becomes more completely ripened, a result of infinite consequence in the northern parts of the country.

It is rather to a judicious choice of soil and situation that the gardener must look for the means of softening the rigor of climate. Wet tenacious soils are found the most difficult to heat or to drain, and they will, therefore, be the most unfavorable to the operations of the gardener; extremely light sandy soils, on the other hand, part with their moisture so rapidly, and absorb so much heat, that they are equally unfavorable; and it is the light loamy soils, which are intermediate between the two extremes, that, as is well known, form the best soil for a garden. Situation is, however, of much more consequence than soil, for the latter may be changed or improved, but a bad (that is, cold) situation is incurable. Cold air is heavier than warm air, and, consequently, the stratum of the atmosphere next the soil will be in general colder than those above it. When, therefore, a garden is placed upon the level ground of the bottom of a valley, whatever cold air is formed upon its surface remains there, and surrounds the herbage; and, moreover, the cold air that is formed upon the sides of low hills rolls down into the valley as quickly as it is formed. Hence the fact which to many seems surprising, that what are called sheltered places are, in spring and autumn,

the coldest. We all know that the dahlias, potatoes, and kidney-beans of the sheltered gardens in the valley of the Thames, are killed in the autumn by frosts whose effects are unfelt on the low hills of Surrey and Middlesex.* Mr Daniell says the has seen a difference of 30°, on the same night between two thermometers, placed the one in a valley, and the other on a gentle eminence, in favor of the latter. Hence, he justly observes, the advantages of placing a garden upon a gentle slope must be apparent; "a running stream at its foot would secure the further benefit of a contiguous surface not liable to refrigation, and would prevent any injurious stagnation of the air."

In addition to this, it has been said that, to obtain the most favorable conditions of climate in this country, a garden should have a south-eastern exposure. This, however, has been recommended, I think, without full consideration. It is true that in such an exposure the early sunbeems will be received; but, on the other hand vegetation there would be exposed to several unfavorable actions. There would be little protection from easterly winds, which, whether south-east or north-east, are the coldest and driest that blow: in the next place, an exposure to the first sun of the morning is very prejudicial to garden productions that have been frozen by the radiation of the night; it produces a sudden thaw, which, as gardeners well know,† causes the death of plants which, if slowly thawed, would sustain no inconvenience from the low temperature to which they had been exposed.‡ It is probable, as I have elsewhere endeavored to show, that this singular effect may be accounted for as follows:—"In such cases, it may be supposed that the air, forced into parts not intended to contain it, is expanded violently, and thus increases the disturbance already produced by its expulsion from the proper air cavities; while, on the other hand, when the thaw is gradual, the air may retreat by degrees from its new situation without producing additional derangement of the tissue. It is also possible that leaves from which their natural air has been expelled by the act of freezing, may, from that circumstance, have their tissue too little protected from the evaporating force of the solar rays, which, we know, produce a specific stimulus of a powerful kind upon those organs." (*Hort. Trans.*, n. s., ii. 305.)

In our glazed houses, we have full control over the state of the atmosphere, as regards both its moisture and temperature, by means familiar to every gardener; but the manner of applying those means, and the causes that oppose their action, deserve to be the subject of inquiry.

It will have been seen, from what has been already stated upon that subject, that in general, in warm countries, the air is occasionally at least, if not permanently, filled with vapor to a much greater extent than in northern latitudes*, and, as in our glazed houses, we cultivate exclusively the natives of warm countries, it is also obvious that, as a general rule, the air of such houses requires, at certain periods, to be damper than that of the external air. Those periods are when vegetation is most active. On the other hand, countries nearer the equator are subject to seasons of dryness, the continuance of which is often much greater than any thing we know of here in the open air, and consequently artificial means must also be adopted to bring about, in glazed houses, that state of things at particular periods; namely, those of the repose of plants. These facts afford abundant proof of the necessity of regulating the moisture of the atmosphere with due precision.

By throwing water upon the pavement of glass houses, by means of open tanks of water, by reservoirs placed upon them by syringing, and by other contrivances†, the quantity of water in the air may be easily increased even up to the state of saturation. But there are some circumstances, easily overlooked, which interfere very seriously with this power, and which, it may be conceived,

* [A contrary effect is experienced in the valleys of our large rivers and lakes in the United States. On the banks of the Hudson a margin of land from half a mile to a mile in width on each side is very effectually protected from the late spring and early autumnal frosts; while beyond that limit vegetation is blackened by them. In autumn the warm vapor which rises on a cold night from so large a surface probably protects the adjacent shores: and even when moderate frosts actually occur, the morning fog, which lasts an hour or two, by softening the sun's rays and causing a *gradual* thaw, often prevents any injurious result to vegetation. Some of our large inland lakes, the surfaces of which are never frozen, have a decided effect upon the local climate, rendering it much more mild than it otherwise would be. A. J. D.]

† See Hort. Trans., iii. 43.

‡ [In the northern and eastern sections of the union many beautiful shrubs and plants, which are the ornaments of our gardens in summer, but perish if exposed to the rigorous cold of winter, are easily preserved upon this principle. The first impulse of the novice in gardening is to place such half-hardy plants (as the more delicate China roses, carnations, &c.) in some warm sheltered spot, open to the genial rays of the sun in winter; a practice invariably followed by their destruction. Our sun, even in mid-winter, often shines with great brightness, and the thawing and distention of the tissue of tender plants which therefore follows, causes certain death. If, on the contrary, the same species are placed in a cool shaded aspect, or, what is preferable, if they are shielded from the sun by a loose covering of straw, mats, or even boards, and thus kept from thawing except in the most gradual manner, they will be found to have sustained no injury whatever. We have seen a large number of the choicest camellias preserved without any artificial heat through a cold winter, when the mercury ranged below zero for several weeks, simply by covering them with a common glazed frame, well clothed with mats to exclude the direct rays of the sun, or prevent sudden variations of temperature. For the same reason, orchards of peach trees in the middle states, on the cold north sides of hills, are often more vigorous and of greater longevity than those in a full southern aspect: the heat of our summers being sufficient to ripen their fruit and wood in such situations, while they are thus secured from the evils of great and sudden changes of temperature in winter. A. J. D.]

* "Captain Sabine, in his meteorological researches between the tropics, rarely found at the hottest period of the day so great a difference as 10° between the temperature of the air and the dew-point; making the degree of saturation about .730, but most frequently 5° or .850; and the mean saturation of the air could not have exceeded .910." (*Daniell.*)

† A discharge of steam into a glazed house has occasionally been employed; but the method requires much attention on the part of the operator, and seems inferior to other contrivances.

may reduce it very much below the expectations of the cultivator.

The most unsuspected of these is the desrruction of aqueous vapor, by the hot, dry, absorbent surface of flues. The advantages derived from hot-water pipes, or steam pipes over brick flues, are so well known, as not to require any evidence to prove the fact. Gardeners explain the difference in the action of the two, by saying that the dry heat produced by hot-water pipes is *sweeter* than that given off by flues; which is not a very intelligible expression. The fact is, that the air of houses heated by flues is under equal circumstances, much drier than that where hot-water pipes are employed; because the soft burnt clay of the brick flues robs the air of its moisture, while the unabsorbent surface of iron pipes abstracts nothing.

Another source of dryness is the coldness of the glass roof, especially in cold weather when its temperature is lowered by the external air, in consequence of which the moisture of the artificial atmosphere is precipitated upon the inside of the glass, whence it runs down in the form of "drip." Mr. Daniell observes that the glass of a hot-house, at night, cannot exceed the mean of the external and internal air; and, taking them at 80° and 40°, 20 degrees of dryness are kept up in the interior, or a degree of saturation not exceeding .528. To this, in a clear night, we may add at least 6° for the effects of radiation, to which the glass is particularly exposed, which will reduce the saturation to .424; and this is a degree of drought which must be very prejudicial. It will be allowed that this is not an extreme case, and much more favorable than must frequently occur during the winter season. Some idea, he adds, may be formed of the prodigiously increased drain upon the functions of a plant, arising from an increase of dryness in the air, from the following consideration:—If we suppose the amount of its perspiration, in a given time, to be 57 grains, the temperature of the air being 75° and the dew-point 70°, or the saturation of the air being .849, the amount would be increased to 120 grains in the same time, if the dew-point were to remain stationary, and the temperature were to rise to 80°; or, in other words, if the saturation of the air were to fall to .726 (*Hort. Trans.*, vi. 20.) It is well known that the effect of maintaining a very high temperature in hot-houses at night, during winter, is frequently to cause the leaves to wither and turn brown, as if scorched or burnt, and this is apparently owing to the dryness of the air, in consequence of the above causes.

It is evident that the mode of preventing this drying of the air by the cold surface of a glass roof will be either by raising the temperature of the glass, which can only be effected by drawing a covering of some kind over our houses at night, so as to intercept radiation, or by double glass sashes; or else by keeping the temperature of the air of the house as low as possible, consistently with the safety of the plants, and so diminishing the difference between the temperature of the external and internal air.

A bad system of ventilation is another cause of the loss of vapor in the atmosphere of glazed houses, to which reference will be made in the succeeding chapter.

It is, in all appearance, to the attention that, since the appearance of Mr. Daniell's paper, in 1824, upon this subject, has been paid to the atmospherical moisture of glazed houses, that the great superiority of modern gardeners over those of the last generation is mainly to be ascribed; there are, however, traces of the practice at a much earlier period, although, from not understanding the theory of the practice, no general improvement took place. In the year 1816, an account was laid before the Horticultural Society of a very successful mode of forcing grapes and nectarines, as practised by Mr. French, an Essex farmer, with very rude materials, and under unfavorable circumstances. It is not a little remarkable, that, although Mr. French himself correctly referred his success to the skilful management of the atmospherical moisture of his forcing-houses, the subject was so little understood at that time, that the author of the account not only shrank from adopting the opinion, but evidently, from the manner in which he speaks of Mr. French's explanation, had no idea of its justness. The method itself is sufficiently remarkable to deserve being extracted.

"About the beginning of March, Mr. French commences his forcing, by introducing a quantity of new long dung, taken from under the cow-cribs in his straw yard; being principally, if not entirely, cow dung; which is laid upon the floor of his house, extending entirely from end to end, and in width about six or seven feet, leaving only a pathway between it and the back wall of the house. The dung being all new at the beginning, a profuse steam arises with the first heat, which, in this stage of the process, is found to be beneficial in destroying the ova of insects, as well as transfusing a wholesome moisture over the yet leafless branches; but which would prove injurious, if permitted to rise in so great a quantity when the leaves have pushed forth. In a few days, the violence of the steam abates as the buds open, and in the course of a fortnight the heat begins to diminish; it then becomes necessary to carry in a small addition of fresh dung, laying it in the bottom, and covering it over with the old dung fresh forked up: this produces a renovated heat, and a moderate exhalation of moist vapor. In this manner the heat is kept up throughout the season, the fresh supply of dung being constantly laid at the bottom in order to smother the steam, or rather to moderate the quantity of exhalation; for it must always be remembered, that Mr. French attaches great virtue to the supply of a reasonable portion of the vapor. The quantity of new dung to be introduced at each turning must be regulated by the greater or smaller degree of heat that is found in the house, as the season or other circumstances appear to require it. The temperature kept up is pretty regular, being from 65 to 70 degrees." (*Hort. Trans.*, i. 245.)

In this case, which attracted much attention at the time, it is evident that the success of the practice arose principally out of two circumstances: firstly, the moisture of the atmosphere was skilfully maintained in due proportion to the temperature; and, secondly, a suitable amount of bottom heat was secured. This is, as will be elsewhere remarked, the principal cause of the advantages found to attend the Dutch mode of forcing. The

reporter upon Mr. French's practice speaks with surprise of the rudeness of the roof of his forcing-houses, and of the numerous openings into the air through the laps of the glass and the joints of the sashes; but these were points of no importance under the mode of management adopted.

The imposibility of preserving any plants except succulents, in a healthy state, for any long period, in a sitting-room, is evidently owing to the impracticability of maintaining the atmosphere of such a situation in a state of sufficient dampness.

An excess of dampness is indispensable to plants, in a state of rapid growth, partly because it prevents the action of perspiration becoming too violent, and partly because under such circumstances a considerable quantity of aqueous food is absorbed from the atmosphere, in addition to that obtained by the roots.

But it is essential to observe that, when not in a state of rapid growth, a large amount of moisture in the air will be prejudicial rather than advantageous to a plant; if the temperature is at the same time high, excitability will remain in a state of continued action, and that rest which is necessary will be withheld, the result of which will be an eventual destruction of the vital energies. But, on the other hand, if the temperature is kept low while the amount of atmospherical moisture is considerable, the latter is absorbed, without its being possible for the plant to decompose it; the system then becomes, in the younger and more absorbent parts, distended with water, and decomposition takes places, followed by the appearance of a crop of microscopical fungi; in short, that appearance presents itself which is technically called "damping off."

The skilful balancing of the temperature and moisture of the air, in cultivating different kinds of plants, and the just adaptation of them to the various seasons of growth, constitute the most complicated and difficult part of a gardener's art. There is some danger in laying down any general rules with respect to this subject, so much depends upon the peculiar habits of species, of which the modifications are endless. It may, however, I think, be safely stated, that the following rules deserve especial attention:—

1. Most moisture in the air is demanded by plants when they first begin to grow, and least when their periodical growth is completed.

2. The quantity of atmospheric moisture required by plants is, *cæteris paribus*, in inverse proportion to the distance from the equator of the countries which they naturally inhabit.

3. Plants with annual stems require more than those with ligneous stems.

4. The amount of moisture in the air most suitable to plants at rest is in inverse proportion to the quantity of aqueous matter they at that time contain. (Hence the dryness of the air required by succulent plants when at rest.)

THE BLISTER FLY.

From the Kentucky Farmer.

We are very much obliged to Professor Mitchell for the following; and we think his remarks go to encourage the suggestion we threw out, of the propriety of employing children in gathering blister flies for sale to the apothecaries. We have observed, since writing the previous notice, that some of the flies have but one stripe on the back, while others have three, by which we conjecture, the different sexes might be discriminated.

There are now two material remarks to make upon the subject of this destroyer. The first is, that his ravages may be arrested by the use of lime, as directed in an excellent communication from Mr. Pindell which we publish to-day; and the other is, that the destroyer himself, may be easily caught and made a profitable object of commerce. We have now recorded to opinions of Doctors Mitchell, Parker and Martin, in favor of the excellent qualities of the fly for producing blisters.

Near Lexington, August 10th, 1841.

Dear sir:—The article in your last number, on *blister flies*, has claims to further notice. They have completely riddled my sugar beets and potato vines. They appear to prefer the sugar beet, to the common kind, the latter being comparatively but little injured. On examination, after reading your remarks, I perceived considerable variety in the bugs, as I find them among my beets. Some are almost entirely black, while others have several yellow streaks, running lengthwise. They are all about three fourths of an inch in length, do not attempt to fly, but fall to the earth readily when the leaf is shaken.

The flies are all known as *potato* flies, because found in patches of that vegetable, but they are varieties of the genus *cantharis*. The species already known amount to seven or eight, though four only I believe have been employed medicinally.

The most common species is the *cantharis vittata*, called also *lytta vittata, potato fly, &c.* It was first described in 1781 by a foreigner, but in 1805, its properties were noticed in a memoir furnished by Dr. Isaac Chapman, of Bucks county, Pennsylvania, in the New York Medical Repository, vol. 2d, page 163. During the last war, Spanish flies rose to an extravagant price, and at length could not be had at all, in some parts of the country. This emergency led to the extensive use of the *potato* fly, above named, in the Eastern hospitals, dispensaries, and in private practice. I made several trials of this American fly. in 1811 and 1812, with entire satisfaction.

Dr. Chapman caught the flies in a common quart mug, which he placed in boiling water, to destroy the vitality. He says, "as no difficulty attends gathering them, children may be profitably employed in the business, and as *cantharides* often sell at from ten to sixteen dollars per pound, they will be an object worthy of attention."

The *ash colored* fly, described first in 1801 by Illiger, I have not seen. It abounded in Massachusetts in 1808, and excited a good deal of interest in the medical profession. It infests the potato vine, bean vines and wild indigo, and some mistake it for the *vittata*, which is mainly black, but has yellow lines on the breast and back.

The *Cantharis marginate* was examined by the late Prof. Woodhouse, and afterwards by Dr. Harris, of Massachusetts. It is black, with two

lengthened lines of a bright clay color. It is rather larger than the *vittata*, and of a different form.

The *Cantharis atrata*, or *black* fly, is the most completely black of all the species. But it is not the fly we have among us, for it is not more than a half inch in length, nor is it found so often on the potato vine, as on some other plants.

Besides these, Messrs. Say and Mitchell, found some other species near the Rocky Mountains, though they have not been submitted to satisfactory trials.

These flies are not annual visitants, but come here and there occasionally. In the heat of the day, they descend into the soil, and operate on the vegetable fibre in the morning and evening.

If you think these notices worthy the attention of your readers, they are at your service.

THOS. D. MITCHELL.

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AMERICAN BLISTER FLY AND PEACH TREE GRUB DRIVEN OFF BY LIME—FISH OIL FOR PEACH AND PLUM TREES.

From the Kentucky Farmer.

Lexington, Ky. 16th Aug., 1841.

Dear sir :—I saw, in your last paper, a short notice of a fly that has been very destructive to some kinds of vegetation in several counties. It has been noticed for some years, but is greatly increased in the present. The common name is the American blister fly, and it is said to be even superior for blisters to the Spanish. They first attacked the potato tops in my garden, and utterly demolished them, treated the beets in the same way, and next commenced their depredations upon cabbages and tomatoes, and would have swept them in a few days. They proceeded in large numbers, and in a few hours would strip a cabbage or tomato vine to shreds.

I succeeded in stopping them and completely driving them off from every thing they attacked, after I discovered the effect of the application, which was very simple. I took common slacked lime and sprinkled it early, before the dew was off the plants and when damp from rain, upon all the vines and cabbages, &c. upon which the flies were feeding, and the instantaneous effect was, to produce a great stir and early abandonment of their quarters. In this way, I completely drove them off, and have no doubt but that my potatoes and beets might have been saved if I had applied the lime in time. I of course made the same application to any thing I thought it probable they would attack, and I have been unable to discover any injurious effect of the lime. And while my pen is in hand, I will give you the result of another successful experiment with lime. I had some young peach trees of fine kinds and last fall noticed them turning yellow and preparing to die. On examination, I found they were beset by the grub, and some of them with nearly all the bark at the root eaten off. In the winter, during a thaw, I removed the earth around the tree to the lowest point I could find a grub, and destroyed all I could find, and applied lime freely where I had taken out the earth, and left them in this way until spring, when the removed dirt was returned. Some of the trees were so far gone that I thought no medicine could heal them. This summer, they are all green and as healthy as they can be. I have heard of a successful protection from this grub by using, spring and fall, an application, in the same way, of the scrapings from our common limestone turnpike roads. This is used by the same person as an application to other fruit trees, and with the finest effect. Fine crops of peaches and plums are produced *every year*, by a gentleman of this place, and his trees are treated in this way: In the fall, common fish oil is applied, from a pint to a quart, to the root of each tree. In the spring, before the bud starts, the same application is made and the body of the tree rubbed with oil, two or three times, at intervals of a week or ten days. A piece of flannel or cloth is tied round the tree and saturated at the same time with the oil. The whale oil soap, mentioned in some of the papers, may be a more effectual remedy; at least I will try it.

I have spun this out longer than I intended. Though to you and me a very interesting subject, I am very sorry to say that the great bulk of your readers care nothing about any remedy for the ravages of the grub, and would not use one ever so simple and certain. R. PINDELL.

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LIME—MARL—TOP-DRESSING.

Extracts from the Address of Gen. Thomas Emory to the Agricultural Society of Queen Ann's county, Md.

I have frequently been jeered with the inquiry of what possible benefit will internal improvements be to the Eastern Shore of Maryland? and making a long argument a short one, I have answered—they will *give us lime for the improvement of our worn out lands*, if nothing else.

Men are apt to deride things from a want of knowledge; particularly are they so prone, when a lack of this useful commodity causes them to believe they have all knowledge.

I here, before this respectable society, at a moment of the deepest odium from taxation, levied for the purpose, renew and proclaim my adhesion to necessary works of internal improvement for the whole state, with the Eastern Shore inclusive. In doing this, I do not mean to give approbation and approval to the humbug of certain offices in the state, nor to the propriety of the expenditure of many heavy sums of money which have been disgracefully squandered by the legislature, or by the corporations on worthless individuals, who employ their wits only to learn how to fatten on the public money. The people of the state, moreover, cannot be too strict in watching the conductors of the public works, and holding them to the strictest accountability. This being done, notwithstanding the losses and waste sustained, I believe all the great works will hereafter, when finished, pay a fair interest on their outlay. I have already glanced at some of the effects of these public works, in restoring to Baltimore by artificial means its lost trade, in arresting emigration from our borders, and in enhancing the value of our lands. I will now come nearer home, and add that it is a moderate estimate to suppose that within the last twelve months, and at the beginning of the trade, from one hundred to one hun-

dred and fifty thousand bushels of lime have been distributed for manure on the shores of Chester river and its tributaries. I have seen as much as 8000 bushels at one time afloat in sight of my house, and the trade is constant and increasing.

It will be borne in mind that not one bushel of this lime could have been sold here at prices to justify its being used as manure, had not it been for the works of internal improvement, built or patronized by the state of Maryland. We are indebted to the Chesapeake and Delaware canal, and Tide Water canal, and to the rail-roads leading to Baltimore, for all the stone lime we can or ever shall use here as manure. I would beg to put the question to any farmer now present, who has not on his farm a full supply of marl or oyster shells, and who has tasted of the value of lime, whether he would not prefer that the present temporary tax, about to be laid to pay the interest for expenditures on internal improvements, should be fixed *for ever upon his property rather than that he should for ever be denied the use of lime as manure?*

Our lands have gone up, and they are still destined to go up much higher, within striking distance of navigable water. The first inquiry now made by an intelligent farmer desirous of buying, is, has the land marl or oyster shells, or is it accessible to lime? This is a pregnant inquiry, and the value of the farm is found to depend much upon the manner in which it can be answered. For my own part, so thoroughly am I convinced of the indispensable necessity of lime for the resuscitation and permanent improvement of our exhausted soil, (after an experience of over thirty years, and abundant reflection on the value of lands and their productive power, and on the comparative value of other business,) were it possible for me to live my days over, and were I offered one of the best farms in the state destitute of the calcareous material, and required to live on it and work it to the end of my days without the privilege of procuring lime, I would not accept it as a gift. This you will say is a bold assertion, but I make it after full reflection and deliberation. My experience teaches me to believe, that the calcareous and alkaline ingredients are the basis of the fertility of all soils, and that the best apparent soils, without this *sine qua non*, may be easily exhausted, and that they cannot, by any system of tillage, be held to permanent fertility without it. The use of lime and good farming will ere long revolutionize and fertilize this whole shore within reach of navigable water. But when our lands are thus improved, they will not reach their just comparative value, because their possessors will not be able to use them for the best and most valuable purposes, until they adopt the right sort of steam boat navigation, and take it under their own control—and, above all, till they have a cheap and expeditious highway, running through the shore, and connecting with the public works which lead to Baltimore and Philadelphia, and open those markets to them, in the *winter*, the most profitable of all seasons of the year. Without this, these markets must remain closed to them for all valuable purposes. Who now, on this shore, having the most ample necessary means to accomplish it, dreams of establishing a dairy on a large scale—who undertaking to raise hay on an extensive scale, either to sell or to feed to winter fatting stock—who to gather up and send to market in the leisure season of winter, the various little articles, the aggregate proceeds of which are all clear profit, and amount to so much ready money? none of us, because those markets are as effectually closed against us in the winter season, as if there was an ocean intervening.

The people on our shore do not yet sufficiently estimate this heavy deprivation, this terrible drawback upon the intrinsic value of their lands; but light on this subject will increase with every revolving year, until public sentiment will award to the treachery or the ignorance of those Eastern Shore legislators, who have greedily surrendered the power we had of relieving ourselves from this difficulty, that niche in the temple of fame to which they are now fully entitled. I have contended for this important matter of relief for our shore, till I have been brought to the verge of ruin, and am wholly unable to proceed further. I leave it to others, well assured that the time will come when it will be a source of regret to the people of the whole shore, that the effort has so far been unavailing.

I regret that in consequence of other engagements, of which I was not aware, I did not succeed in my effort to have a meeting of the board at my house on the first day of this month. The board had, just twelve months before, witnessed an experiment that I was making, by turning under for wheat fallow an oat lay, which had it been harvested would have given me 45 bushels to the acre. The experiment was on about five acres, with the oats taken off from two of the contiguous sides of the square. I wished the board to see this experiment for themselves, when they would have seen a fair crop of wheat on all the field; but I am persuaded no human being could, from the visible effect of the oats turned under, have discovered where the operation began or ended. This is the third experiment I have made of turning under a heavy crop of oats on recently limed land, just at the time they were beginning to change color, and now being satisfied it will not do, I shall repeat it no farther. No green crop that I ever have turned under for manure, except clover, has realized my expectations. Even clover lay I prefer with the top mown or grazed off. The future effect upon the land I yet desire to witness in the after cultivation, but the oats turned under this season having been completely decomposed by the quantity of rain, I do not expect to have my opinion changed, and expect confidently to remain where I now am, and have been for a long time, a firm believer in the propriety of surface manuring, rather than turning it under. I have never been disappointed in weeds or other manure spread upon the surface and allowed to decompose there, and thus become absorbed by the soil. When turned *under the soil*, it bleaches, seems to become neutralized, and its effects are lost and go I know not where. It may be that the direct action of the atmospheric air is essential to give vigor and fertilizing effect and action to substances known to be manures. I know that, when turned deep in a thin soil, dark substances lose their color, and on my land they do not act as manures when thus placed. I have recently seen an account of the successful experiment of a North Carolina farmer, who, rolling

down an oat crop, allowed it to waste on the surface, which I much desire to see repeated here. This experiment much better accords with the theory of surface manuring, which seems rapidly to be gaining ground every where.

SALT LIE, OR SPENT LIE.

From the New England Farmer.

In the manufacture of hard or bar soap, much lie is run off. Ashes, lime, salt and grease are put into the boiler, and the lie contains a portion of each of these ingredients. Each of these may be a fertilizer. And may not the lie be serviceable on the land? We were told last winter, that Hon. Wm. Jackson, of Newton, had used the lie from his factory for several years upon grass lands, and that he had furnished his neighbors with the article for use upon their fields. Upon inquiry, we learned that several farmers who have tried it, continue to put it upon their grounds. In past years they have used it only upon the grass; but this season it has been applied where corn, potatoes, carrots, and the like have been planted. We have recently visited some fields where it has been used, and the result of our observation is, that crops upon it, excepting where the land is quite dry, grow very well; but since other manures were used with this it is not easy to say precisely how far the lie is beneficial. More good would result from its application in wet times, than in dry: for its influences apparently resemble those of the urine from the cattle when in the pasture. Every farmer knows that in a hot and dry time, the grass perishes, where the urine is voided; and he knows equally well that the urine in wet weather increases the growth of grass. So it is apparently with this lie. Generally no harm has resulted, even in the drought of the last month, to the crops in Newton, which are upon land that had the lie applied to it in May. There need be little apprehension of harm, unless the lie be put in the hill, or directly under the seed. Where it has been spread upon corn land and harrowed in, the corn grows well—but in one place in Wenham, where *fodder corn* in drills was put upon the lie in June, the corn failed to vegetate well, and much of what came up withered and perished; though the stalks which survived are now doing well.

We are using this article. Having procured a tight box, made of pine plank, 10 ft. long, 4 ft. wide, and 2 ft. deep, and fixed it upon the wagon axletrees, we procure loads of about 600 galls. each. This we cart 5 miles. In one side of the box is a plug filling a two-inch auger hole. For the purpose of unloading, this plug is taken out, and the lie is run into heaps of soil or of muck. The load of 600 gallons will saturate from 1 1-2 to 2 1-2 cords. This is thrown over once or twice, and at any convenient time is spread upon the land. We have not yet had opportunity to ascertain its effects, but are so well persuaded that it will be beneficial, that we shall continue through this season to haul all that is run into the cistern from which we draw. The manufacturer of soap put down a cistern which holds 2400 gallons, and put into it a pump, placed so high that the liquid is pumped directly into the wagon or box. On the top of the box is a slide, about one foot square, through which the lie is admitted. We pay for the article at present, $2 per load of 600 gallons. Whether this article is worth its cost, we do not yet know; and we should have made no mention of it at present, but for our wish that attention may be drawn to whatever promises to be serviceable as a manure, and that its virtues should be proved by all who are willing to make experiments.

EXTRACTS FROM REPORTS OF THE EXECUTIVE COMMITTEE OF THE "ASSOCIATION FOR PROMOTING CURRENCY AND BANKING REFORM."

Published by order of the Association.

Earliest effects of the forming of the Association.

* * As short as has been the time since this Association was commenced, its establishment has already produced some novel and excellent effects, in inducing inquiry, and eliciting information from sources before dark or hidden. Before our movement to sustain the operation of the existing suspension law in its requisition for the resumption of bank payments next January, who among the apologists for, and advocates of the banks, had uttered a word to complain of the shortness of the limit of suspension, as fixed by that law? Who among them had even whispered the opinion that the banks ought not and could not pay specie next January, as required by that law? Who had dared to confess, or permit the necessary inference from other assumptions, that this law, like its several similar annual predecessors since 1837, had been passed but to deceive and to cheat the expectations of the people of Virginia founded thereon, and was designed to be re-enacted, and its operation postponed, before next January, and afterwards again and again? Not one. All who held any of these opinions were as silent as the grave in regard to them, until the petition of our Association, for the observance of the limit of the existing law, provoked opposition, and forced the opposers either to utter their objections, or, otherwise, by their silence, seem to admit the justice and propriety of our declared purpose. But now, many persons are ready to advocate the object that before was kept so effectually, if not designedly, concealed. Now, nearly every apologist for the recent and present procedure of the banks, and who therefore is opposed to the object of our petition, assumes as premises, that the limit of bank suspension, fixed by the last law of indulgence, is *too near at hand*—that the banks will *not* be then ready to pay specie—and that to compel them will be ruinous to the banks, and greatly injurious to all debtors, and the public interests. We will not now stop to consider and oppose these objections; but will merely remark that, if they were as sound and deserving of respect and submission, as in fact we deem them otherwise, those persons who now assert these opinions *ought to have been the first to speak*, for the purpose of calling attention to and condemning the limit of the existing law, and to urge the people to unite to petition for further extension of the limit, although (as it is understood) the law was pro-

posed and written, and the limit of suspension fixed, by the highest authorities of the banks themselves. But no doubt the banks and their most thorough supporters desired that no suspicion of their intended game should be awakened, until so short a time before the arrival of the legal limit of suspension, that the legislature would be again *compelled*, by the then necessity of the case, (though the necessity were to be produced by the bad faith and improper conduct of the banks,) to give them another year of indulgence and continued suspension.

If our Association were to do no other good than to induce these developements, this alone would be worth all the trouble taken, and all sacrifices made or required. The issue between resumption and re-suspension of specie payments has now been made, and put fully before the people, six months in advance; and the arguments are presented, on both sides, on the important question whether the banks shall at any time, or *never*, pay specie for their notes and other debts. We use the word "*never*" advisedly, and to be taken to the very letter. For, the facts (so called) asserted, and the arguments used by bank advocates, to show the necessity for again postponing the resumption of specie payments for another year, have already served for the three preceding years, and will serve as well for every successive year hereafter, and, consequently, for all future time. We therefore clearly have the right to infer, that any one who is well informed on the subject, and who is not deluded in regard to facts, (as are most of the disinterested supporters of and apologists for the banks,) and who advocates continued suspension of payments on *merely* such grounds as these, is in fact contending, whether he so designs or not, for the policy of *permanent stoppage of specie payments*, and an entire currency of irredeemable, and therefore necessarily depreciated currency, as the fixed future policy of our country.

The banks of Virginia not preparing for or intending to pay specie next January.

It would be a valid and conclusive objection to the above inference, if the banks were indeed making any efficient progress in their pretended preparation to pay specie. But it is certain that such is not the case. The banks are *not* getting ready for a return to specie payments, because they expect again to put off the requisition of law for another year; and, according to the rate of their recent progress, they never will be more ready than they were last winter, or the winter before that. The first six months of the current year, they have even increased their average paper circulation compared to their specie.* And this operation, so treacherous to the object of the law of indulgence, and most injustifiable in every aspect, was so enormous in the Farmers' Bank during the first three months, that its *net* profits, (which of course are increased in proportion to the excess of paper over specie,) were as high as 10 per cent. per annum. And so lost to all sense of shame were the authorities of that bank, that the official report, furnished to the newspapers, was prefaced with a boast of this great profit, as if it were a notable evidence of their merit.*

Thus, according to our view, opposition to our petition, whether the motives of opposition be virtuous though mistaken, or of less defensible character, and the willingness to accord to the banks a re-extension of suspension for 1842, amount to an efficient support of the *permanent* policy of an entire irredeemable and depreciated paper currency. Are there any persons, except those interested in the existence of banking abuses, and the greatest possible extension of bank loans, who will consent, for any consideration of present convenience or profit, to fasten this fatal policy on our country? Probably none as yet; and even of the partizans of the banks, not one would yet venture openly to recommend or defend the permanent establishment of an exclusive and irredeemable paper currency. But, nevertheless, unless the movement of this and other associations shall prevent, or in some other way the *people* shall take the remedy in hand, this general and destructive policy is as certain to be established, as that another year of bank suspension will always be required "for the banks to get ready to resume," after the end of each preceding year of indulgence.

The actual course, and the proper course, of opponents from good motives.

We readily admit, and incidentally and indirectly have already stated, that many of our opponents are impelled by motives as honest, as patriotic and as disinterested, as we claim for our own. We fully believe that very far the greater number of those who, because deceived by false pretences, will now oppose our petition and advocate still another term of indulgence to the banks, and suspension of payments, are truly enemies to this and to all other of the known fraudulent operations and tendencies of the existing banking system of this country. It is only because of their having been misled and deluded, that all these good citizens and disinterested and independent as well as well-meaning and honest men, and who in principle and in general opinion are with us, yet lend their influence and weight to

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* "The statements rendered by the three principal banks of Virginia show their respective amounts of notes in circulation and specie to be as follows on July 1.

Bank of Virginia and Branches.

Notes in circulation,	$2,649,798
Specie on hand,	821,442

Or $1 specie for $3.22 of paper in circulation.

Farmers' Bank and Branches.

Notes in circulation,	$2,339,015
Specie,	677,530

Or $1 specie for $3.43 of paper in circulation.

Exchange Bank and Branches.

Notes in circulation,	$774,085
Specie on hand,	233,839

Or $1 specie for $3.31 paper in circulation.

We have not yet received the report from the smaller western banks, but presume they are no better off. The general proportion of all the Virginia banks on January 1, 1841, was $1 specie to every $3.05 of paper in circulation, which was being something better prepared to pay specie than after another half year of pretended "preparation" to pay."—*Farmers' Register, Aug.* 13.

* This statement, and the preparatory boast appeared in both the Richmond Whig and the Compiler, at the same time, and in precisely the same words, so as to prove a common source.

further the designs of the ultra irredeemable paper partizans. It is by these, our honorable and patriotic but mistaken opponents, that we are most anxious to be heard. And if our arguments and statements fail of all effect in changing their course, we would beg leave to suggest a mode by which they can maintain their principles and yet oppose what they deem the too hasty exaction of specie payments. All such persons are in favor of the banks resuming specie payments at *some* future time—and very few would now agree to an extension of more than (the always needed) "one more year." They would then sustain their position and principles, oppose our greater precipitancy, and at the same time test the sincerity of their leaders and allies, by putting forth another petition to the legislature, to extend the permission to the banks to suspend and withhold specie payments to such certain named time as may be now deemed ample—but to make the resumption, at that named time, *certain*, and under sufficient legal penalties in case of failure. If *our* proposed limit to suspension is deemed too short, (though fixed by the law and by the banks,) let the other petition fix any more distant time for resumption. Let 6, 12 or even 18 months be added to the limitation which the present law fixes, and which our petition asks to be held sacred. But whatever be the extension of the limit, let it be *final*. If acting on this plan, our opponents upon patriotic and disinterested grounds would then find that many of their present allies would desert them, and will either never advocate resumption of bank payments at any certain time that can be named, or, otherwise, will change their language and their position before any such time shall arrive. These our well-meaning opponents would then see that they themselves had been placed in a false position; and that to support their own principles and desired public policy, they ought to be *on our side*, instead of, by opposing us, subserving mere banking and borrowing interests. And all sincere and true advocates for resumption of payments, in general, might easily compromise upon the mere matter of the proper time. For though we hold, with the law, that the existing limit is remote enough, yet it is comparatively of little importance whether the limit be then, or 6 or 12 months later, provided when the time shall arrive, that then specie payments shall be surely resumed and maintained.

The general deficiency of specie in the United States not the cause of the bank suspensions—but the continuation of suspension a cause for a continued decrease of specie.

One of the sundry fallacies which are continually assumed and set forth as if they were axioms in banking, is that there is not enough specie in this country to serve the banks to resume payment—and that it could not be procured from abroad, except at much too great a sacrifice to the people at large. It was not because of the deficiency of specie, in the United States, that the banks all suspended payment in 1837, and that they still continue their suspension. It was because their circulation of paper was enormously expanded in proportion to the specie kept for its redemption; which disproportion was caused, and always will exist as greatly as the laws will permit, by the simple operation of the universal rule, that the more paper a bank keeps in circulation, and the less specie it keeps on hand for redeeming the paper, the greater will be the profits of the bank. Besides—the banks of Virginia, as generally elsewhere in this country, by their long continued and repeated acts of bad faith, have justly forfeited much of the confidence of the country which they formerly enjoyed, and therefore a much larger stock of specie is now necessa- to meet the expected demands of note-holders than would have been previously. These difficulties have been entirely caused by the misconduct of the banks—and the longer they continue to suspend the performance of their just obligations the more will these difficulties increase. The banks cannot possibly return to doing justice, and at the same time continue to receive the full profits of their injustice, and course of violation of moral and legal obligations. The general suspension in 1837, we repeat, was not caused by the general deficiency of specie; but the certain effect of bank suspension and the consequent rejection of the use of specie as currency, is to cause it to be sent away to countries that still use it as currency. There is no rule more indisputable than that two kinds of currency, of different rates of value, cannot circulate or even exist (as currency) in any community, at the same time. This, one of the most important truths and principles of political economy, is susceptible of such familiar illustration for each particular case, that it can be made perfectly clear to every one. Suppose the currency of a town (say Petersburg) and its trading country to be of irredeemable bank notes, depreciated in value 5 per cent. below the market price of specie; and suppose, by some extraordinary circumstance an individual becomes possessed of a sum in specie. What will he do with it? Will he use it, indiscriminately with his paper money, in paying his ordinary debts of account, or in making purchases for cash? Certainly not. For these, and every other ordinary expenditure, he will use his depreciated paper money, which was the kind of currency charged for and expected to be received by those with whom he dealt. He will not spend a dollar of his specie for any thing for which paper will serve as well. This is the first, immediate, and universal effect of suspension of payments by banks, and of their paper being depreciated below the value of specie. And as every individual would have the like strong inducements so to act, there would be an almost instantaneous disappearance of specie throughout the country. It would only be seen to form that small part of circulation for which paper money would not be received at all, or could not serve; such as for change smaller than the smallest denomination of the current paper money, or for duties to government, or any other payments for which specie only would be received. But, on the supposition just made, the specie thus hoarded would not remain in the first hands, useless and profitless. As it would sell for a premium of 5 per cent. over the general currency, it would gradually but certainly be sold, and sent by the purchasers to places *which used specie for currency*, and where therefore only there was an effective demand for specie. The non-specie paying banks here would not buy it, of course—for that would be just the reverse of their actual and

general procedure, and be just so much lessening of their profits made by their suspension of payments, and depreciation of their bills. Individuals would not buy the specie, because, as above stated, it is the interest of no individual to use specie, when depreciated paper will pay all his dues as well. Of necessity then, under such circumstances the specie, soon or late, must leave such a country, and be sent to New York, or to Europe, where it will command its value as currency.

Thus specie is continually passing from the states which permit their banks to suspend payment, and where consequently specie is not used as currency, and going to New York or other places where the currency is based on specie. But the specie-paying policy of New York has already served to supply it to the trade of New York abundantly. The banks there have as much as they desire to keep in their vaults, and all the channels of trade and circulation are filled. Of course the surplus receipts of specie must be sent abroad, as a commodity, to be exchanged for other commodities more needed there than specie —and so it is sent continually. More than 7,000-000 of dollars in specie have been shipped from New York to Europe within the last ten months. The last packet advertised to sail from that port to Havre was to carry $62,000 in specie. And thus, as long as bank suspension is permitted, as a regular or permanent policy of Virginia and other states, it operates constantly to lessen still more the stock of specie that is in the country. How absurd then is the belief that the extension of the limit of suspension serves to facilitate the resumption of bank payments!

There are but two possible modes by which suspended banks can prepare to resume specie payments. The one is, to draw in and lessen their amount of notes in circulation—the other by buying or otherwise procuring and retaining an increase of specie, to meet the expected demands. As may be seen from the official report of the banks themselves, they have been doing neither, but the reverse, during the first six months of the present year of indulgence to their suspension; and it is equally certain and notorious, that nothing had been done by them, effectively, or to any important extent, in either mode of preparation during the previous year; and nothing ever will be so done by them, until imperatively commanded and *forced* by the popular will and indignation, acting through the laws. And in thus failing to prepare for resumption of payment, the banks are guilty, in the highest degree, of bad faith to the community, inasmuch as every successive extension of indulgence has been granted to them by the legislature, and acquiesed in by the credulous and deluded people, because of the understood promises, expressed or implied, that such extended time of indulgence would be faithfully and honestly used by the banks to prepare them to resume specie payments at the end of that limit of time. Instead of that, these repeated acts of indulgence have been used but to increase the illegitimate and dishonest profits made by the very act of suspension, and the violation of legal and moral obligations by the banks.

The selling of specie by the banks.

But, in addition to this failure to *increase* their stock of specie compared to the amount of their notes in circulation—a designed and systematic failure which well deserves to be called treacherous to the indulgent legislature and confiding people—what would be thought if it were charged that these banks have been and are regularly engaged in selling specie, for their own or other depreciated bank notes, for the profit of such premium or difference of price, as is caused solely by the depreciation, and that from these sales the richest of the present large and unrighteous profits of suspension are derived by the banks? Every disinterested hearer of such a charge would pronounce such conduct to surpass every thing of bad faith before known of the procedure of *solvent* banks—and most of the apologists for the present bank policy would cry out against the charge as a monstrous and groundless calumny. Yet we maintain it to be true, to the letter as well as in the spirit. Such transactions, indeed, are not called by so ugly a name as "selling of specie;" they are known, in common parlance, as the "selling of drafts on New York;" but it is nothing more nor less in each case than *selling the amount of specie which the draft or check commands*, and which amount is, at the time of the sale, in a New York bank, ready to be paid in specie. The specie is not the less belonging to the Virginia bank, because it is lying in the vault of a bank in New York, instead of one in Richmond or Petersburg; nor is it worth any less, as specie, to the bank here owning it, because of being in New York—but the reverse. Drafts for specie payable in New York will be worth more to most of those persons who may demand specie here, than would be specie paid here. And, therefore, the fund of specie in New York need not be brought here to be used for resumption.

In another place the evils of this general system of the banks dealing in exchange have been shown. As they use their power over the borrowing class to drive hard bargains with the first holders of the drafts on New York, an unfair and usurious profit is usually made in the first purchase by the banks. But, after having made that profit, if the specie, which these drafts at their maturity will command in New York, were but held there, every one of these numerous purchases would strengthen our banks, and prepare them the better to resume specie payments. But they cannot bear to yield so much present gain for such an object; and therefore their fund of specie in New York is regularly sold at such profit of premium as is regulated by the degree of depreciation of their own notes—and which degree of depreciation is itself in a direct ratio to the supposed discredit or bad faith of the banks. Their self-inflicted dishonor is thus made the most productive part of their trading capital.

Bank usury, in principle and in effect.

As was explained more fully in another report to the Association, the individuals with whom the banks carry on this profitable trade of "dealing in exchange" are subjected to the payment of what is in effect a grinding rate of usury. And there are still other kinds of extortionate usury, in point of fact and in a moral view, continually practised by banks, though the acts may be legalized by the unjust indulgence of law. Of this, we will offer an illustration that any one may see the truth of, and which none will venture to deny.

As the existing law of the land fixes the 1st of next January as the limit of time for the banks to pay specie, we have a right to infer from the law, and from the silence of the bank authorities to the contrary, that on that day they *will* truly resume specie payments, and of course that their notes will then be at par with specie. (Whatever we may fear or believe to the contrary is nothing to the purpose.) Now, on September 1, the notes of these banks are depreciated at least 3 per cent. below the value of specie. If then, on this day, an individual has discounted by the bank a note for $100 due January 1, for a real business transaction, and to be paid at maturity, he will in fact get but $97 for his $100 (deducting the loss by depreciation,) and on his note will be paid to the bank $100, at its maturity. Besides thus paying the legal and proper interest (at 6 per cent. per annum) of $2 for the use of the 4 months loan, the borrower pays, 3 per cent. more in depreciation, or 5 per cent. for 4 months, equal to 15 per cent. per annum, for the loan of $100. And if the rate of depreciation were 5 per cent. as it was but recently, or 10 per cent., as at an earlier time, the process would be the same, and the usury increased in proportion to the greater rate of depreciation. This business of lending depreciated bank notes by a bank, as lawful money, at their nominal amount, has been declared by a judicial decision in Mississippi, to be usury in the legal sense, and the lenders to be subject to all the penalties of usury. There can be no doubt of the correctness of the general principle of this decision and its universal applicability; but we do not undertake to say whether the particular interference and indulgence of the law of Virginia may not have effectually screened the banks from the danger of loss from these usurious transactions.

PLAN TO REMOVE STUMPS.

From the Western Farmer and Gardener.

Mr. Editor:—Although I am not myself a practical farmer, yet I love to see all the operations on a farm carried on with neatness and economy. I own a small farm of two hundred acres in Champaign county; and when I purchased it, the fields were greatly disfigured and encumbered with dead trees standing, and with stumps. I wish that I might have the pleasure of your company over the farm, or indeed at the house (for every field can be seen from the door) to show you the excellent condition which it is now in. There is scarce a stump or bush to be seen, except some very handsome shade trees purposely left for sheltering the cattle in the heat of summer.

The removal of these stumps has been accomplished by a very simple and economical process, which I will attempt to describe, in the hope that it may be beneficial to those who have their lands encumbered with trees and stumps. Procure a dry red-elm lever, about twenty feet long, and about six to eight inches in diameter—a good stout log chain, with two yokes of oxen; this is all the *machinery* that is necessary. The mode of operation is thus: wrap the log chain around the stump a little above the ground, and make what is called a log-hitch; lay the lever horizontally on the ground, the large end next to the chain and against the stump; make the other end of the chain fast to this end of the lever, drawing the lever tight against the stump; the cattle are hitched to the small end of the lever, and driven around the stump in a circle, of which the lever is the radius. One revolution of the oxen around the stump will generally twist out the largest of them; but should not the power thus applied be sufficient to move the stump, the side roots may be uncovered and cut partly off; after this is done, the stump will be easily removed. You will find this plan much preferable to any "patent stump extractor" that you may have seen puffed in the papers. D. L.

ON THE EXTERMINATION OF NUT-GRASS.

From the Southern Agriculturist.

Mr. Editor:—Do you know nut-grass? And do you know how to get rid of it? Without waiting for your answer I will tell you. Hoe it from the beginning to the end of the season, at such short intervals as to prevent the upper vegetation from coming to maturity, i. e. from flowering. Your enemy, if he have been in long possession of his ground, will wage a hard contest with you for the greater part of the season, indeed you will be frequently tempted to believe him invincible; but towards the end of the campaign, if you have continued your attacks without wavering, you will perceive his courage and strength drooping, and by the end of it, that he is fairly on the retreat. But on the opening of the next campaign you will again see him, though in diminished numbers and in scattered positions. If you recommence your attacks, and continue the same practices as before, about the 10th or 15th July, you will receive his final capitulation. I have in this manner exterminated a great deal of nut-grass.

The best way of hoeing this grass is to chop it an inch or so below the surface, and go over it once in every three or four days. I have never tried the plough expressly for this purpose, but I have no doubt that it would be equally efficaceous—perhaps more quickly so. Indeed, I regard the plough, when steadily used, as the most certain eradicator of the nut-grass, while as to the joint-grass it is the best means in the world for propagating it. The reasons in both cases are, I think, too plain to require explanation. As to facts, we know that in the section where the plough is the common and chief implement, nut-grass is unknown, except in yards or inclosures, where the plough never comes; while joint-grass is the universal and growing pest.

The nut-grass shoots up in the spring from solid tubers, or nuts. The roots immediately after developing a certain length of leaf, form a little below the surface of the ground an enlargement or tumor, from which radiate on every side two distinct kinds of offsets—one a small black filiform radicle on which the nut is formed subsequently to the inflorescence—the other a whitish succulent brittle sprout, which after running a little way horizontally comes up another plant, which commences immediately to do the same as the first

sprout; and this process is continued in quick succession to the end of the season. Soon after the several plants go to flower, the black radicles which issue from them begin to form the nuts, which remain in the ground as the parent sources of the vegetation of the next season. The old tubers die soon after bringing out the new vegetation. The object of the foregoing treatment is to prevent the nut from being formed, and the representation I have made gives the rationale of it. With respect, &c. F.

In reply to our esteemed correspondent "F." we would inform him, that it has been our misfortune to form a very intimate acquaintance with the common enemy of the southern planter—*nut-grass*. We will also suggest what we think a more successful, and certainly a far more economical method of exterminating it, than that proposed in his communication. Our remedy is deep winter ploughing, followed by the free use of the harrow or cultivator, and the frequent and diligent employment of the latter implement during the growth of the subsequent summer crop.

When we purchased our farm in the fall of 1839, we found one portion of it—about five acres—so badly infested with nut-grass, that the standing crop yielded a miserable return for the labor that had been expended upon it. One part of the five acres was in sweet potatoes, and the individual who cultivated the farm informed us, that he had been utterly unable to keep down the nut and joint grass, although he had hired additional force during the summer, expressly for the purpose of exterminating these common nuisances.

In the month of December we had the whole farm thoroughly and deeply ploughed by a large plough, and a pair of strong horses. To do this, we employed a laborer from the state of Maine, who had been accustomed to such work, and who performed it most effectually, notwithstanding the ground was very rough.

The plough was followed by the harrow, first in the direction—then across the furrow. By these means a large proportion of the tubers of the nut-grass were brought to the surface, where they were exposed to the frost of winter.

Early in March, about one half of the five acres was manured broad-cast, ploughed again, seeded in oats, and thoroughly harrowed, so as to effectually cover the grain. The oats grew well, but just before it had attained its full growth, it was attacked by the army-worm—the larva of a small night moth (*of the genus noctua,*) by which it was cut down as effectually in a few days, as it could have been done by the hand of man. About the first of June this same piece of ground was prepared for slips in the following manner: Furrows were drawn four and a half feet apart, with a large two horse plough in which a good supply of manure was scattered, after which, with two bouts, with the same implements, (or four furrows,) beds were formed upon the manure, in which all the stubble and sward were completely turned under. The hoes followed, and by a slight touch, made the beds smooth and even, after which the whole was planted in slips, chiefly yams. The slips grew off beautifully, and yielded beyond our most sanguine expectations. But it should be stated, in regard to the subsequent cultivation, as it may have an important bearing upon the nut-grass, that as soon as the slips had taken, the sides of the beds were ploughed down, by taking a slice from each, with a single mould-board plough, after which the dirt was thrown back by the same implement, the work being completed by the hoes. The same process was repeated once, except that at the second working, after cutting the slice from the beds, the cultivator was passed twice in the middle, so as to pulverize the ground thoroughly, and put it in condition to be hauled up readily by the hoes.

In the winter of 1840 this ground was again ploughed, although left in fine condition after the potato crop, and in the month of December and January following, was planted in dwarf marrow-fat peas, which yielded a most abundant crop. As soon as the peas were off, one part was put in water-melons—the remainder in corn—both of which have succeeded well.

We have already stated that only one half of the ground was seeded in oats. The other half, after thorough ploughing and harrowing in the spring, was put in melons, which, during the early part of their growth, were repeatedly worked with the plough and cultivator. After the melons were off, this piece of ground furnished a most abundant crop of hay—not *nut-grass*,—but luxuriant crab-grass, which grew so rank as to be mowed with considerable difficulty. It was then cleared off, ploughed three times, harrowed as often, and ridged for turnips,—one half ruta-baga, the other half red-top, snow-ball, and Pomerania. In putting in this crop, the ridges were formed twenty-eight inches apart, and the manure deposited in the interval. The ridges were then reversed so as to cover the manure, and the turnips drilled upon the top. The crop was kept clean, and the ground well pulverized, by means of a small plough, the cultivator, and the hoe. There was probably never a better crop of turnips raised near Charleston.

The same ground has yielded, the present season, a good crop of melons; will be ready for mowing in a few days; and will then be prepared again for turnips.

It may be stated, in general terms, that the nut-grass has disappeared, its place being supplied by a luxuriant growth of crow-foot (*Eleusine indica,*) and crab-grass (*digitaria sanguinalis.*) Some time after the first winter ploughing, the dead, dry, and partially decayed tubers of the nut-grass were seen thickly disseminated over the whole surface of the soil, and as those which were not brought to the surface by the first operation have been subsequently exposed by frequent stirring and other acts of tillage, they have been submitted to the same destructive processes, and the ground formerly so much infested, although it may here and there exhibit a few plants of nut-grass, may be said to be as clear of this troublesome enemy of the farmer, as any land in the low country.

To all those who are troubled with nut-grass, our correspondent amongst the rest, we would recommend as the best means of exterminating it:—

1st. Deep winter ploughing—not scratching with a small single horse plough, with a lazy negro to guide it—but ploughing to the depth of at least eight inches—even twelve, or more if possi-

ble—also frequent and thorough harrowing, or the use of the cultivator during the winter months, so that the tubers and stoloniferous fibres of the plant may be brought to the surface, and exposed to the frost. They need have no fears of injuring their lands by deep ploughing, provided they furnish them with an adequate supply of manure. The common prejudice against the plough, and the defective use of it, are the greatest curses upon low country agriculture.

2d. To put such crops upon the ground as will admit of its being frequently stirred during the growing season, with the plough and the cultivator—especially the latter instrument.

By the adoption of this course, we will venture to predict, that in a few seasons they will have the satisfaction of seeing one of their most troublesome enemies effectually vanquished.—ED. SOUTHERN AGRICULTURIST.

AMERICAN COTTON PLANTERS IN INDIA.

The Mobile Journal publishes the following extract from a letter from a native of one of the cotton growing states who is now in India under a contract with the Government, or a company who are making an attempt to improve the culture of cotton in that country. The letter contains information which is curious, and deserving of attention from the authenticity of the same.—*Jour. of Commerce.*

Calpee, May 10th, 1841.

I am now about six hundred miles from Calcutta, in the district of Bundlecund, and have commenced business after a sort of fashion. As to labor, I can get plenty, such as it is; one of our negroes will do more work than five of the natives. They are something like our Choctaw Indians at home, only much inferior in strength, courage, and energy.

There is no forest for them to roam in here, as the Coctaws have, and they are therefore compelled to make a living, such as it is, by labor. and the rent to the government eats out the profit of all they do cultivate. The land here all belongs to government, and the natives have to pay rent for using it. The rent is from three to nine rupees per begha, according to situation; the nearer a well the higher the rent, three *beghas* make about one acre of our measurement. This grinds them down so hard that they rarely attempt to make more than a mere living, which is nothing but a little rice. There are few of them that ever get animal food at all, so you may judge what sort of creatures they are for labor, compared with our negroes at the south. I do say that this is greater slavery than that of the slaves in North America. You may say they have no masters to order them to their work as you do slaves, but they are nothing like as well provided for or as happy. You can hire the best men here for five pice a day, women and boys at two to three pice—there are 43 pice in a rupee, and a rupee is worth about 45 cents of our money—so you see the free laborer here gets less than five cents per day, or one dollar and a half a month, with which to clothe and feed himself and pay rent to government.

Besides this, there are other circumstances against this being an agricultural country. There is hardly any timber fit for use. I have seen no tree, since I have been here, higher than 30 feet to the top branch. There are no horses fit for work, except the Arabian, brought from Persia and sold at high prices from hundreds up to two thousand rupees, which is too much for any farm horse, and so we have nothing to depend upon for ploughing, but very small oxen, much inferior to those in America. We may make about 200 pounds of cotton to the acre, and three acres to the hand, which will be about 600 pounds, or a bale and a half of our weight, to the hand, but I have not yet heard of more than 100 pounds to the acre, and that of very inferior stuff compared with Mississippi cotton. Still, as this is much better than the native cultivation, I may do quite as well for myself as at home, for I am disposed to think the government will be liberal. I shall, nevertheless, return to America at the close of my engagement.

SAWDUST.

From the Albany Cultivator.

A. W. L., of Hempstead, L. I., in a communication says:

"My predecessor was in the habit of putting large quantities of sawdust, straw, &c., in his pig pen, let it get thoroughly incorporated and rotten, and then use it as a manure. On the purchase of the place last spring, I found on it a quantity of this sawdust manure, horse manure and long manure, which three kinds I separately put in different parts of my corn field. The result is this: the part with long manure is very poor, (by the way would not poudrette help it?) the horse manure good, and the sawdust *first rate*."

This method of using sawdust has been practised by the Shakers with great success. Rotted sawdust of itself would be a good manure, but put in a pig pen it not only decays, but it absorbs and retains much of the most valuable part of the manure, that would otherwise be lost. Of the great value of hog manure for the corn crop there can be but one opinion. It is decidedly superior to any or all of the ordinary manures for this crop, and a farmer should use every exertion, by frequently replenishing his pig pen with refuse matter, to increase the amount or prevent waste.

GARLIC, A CURE FOR KIDNEY WORM.

From the Western Farmer and Gardener.

Bloomington, Ind., July 9th, 1841.

Sir:—In the ninth number of your valuable periodical, under the head "*kidney worms*," the use of corn boiled with ashes is proposed as a remedy.

This remedy in recent and slight affections, I believe often proves successful; and so does *arsenic*, given in a dose of a teaspoonful or more; but this poisonous drug should never be given, except to stock hogs. The most certain plan of treatment, however, is to make an incision through the skin, about an inch long, parallel with, and

on each side of the backbone, *immediately over the kidneys*—and after separating the skin slightly from the parts beneath, inserting two or three cloves of garlic. The hair of the hog should be shaved off where the skin is to split, and after the garlic is put in, a stitch should be taken with a needle and thread, about the middle of the incision, so as to prevent the garlic from falling out. For thirty years past I have known this plan of treatment followed, and it rarely ever fails, even in the worst cases. Yours, &c.

D. H. MAXWELL.

SNOW-STORMS IN MOUNTAIN DISTRICTS.

From the Penny Magazine.

Those who have never witnessed the great accumulation of snow which takes place during some severe winters in the mountainous districts of the north of England, as well as of Scotland, would scarcely credit the extent, the length, the breadth, and the depth of some of the immense masses of snow that accumulate in certain situations among the mountains; and many persons there are, no doubt, who are totally ignorant of the fact, that in every mountain district of the north there are snow drifts that *never* wholly dissolve and disappear, but fragments of which remain from season to season, and from year to year, in the hollows and declivities of the mountains (for the most part where the aspect is northerly,) notwithstanding the copious and frequent falls of spring and autumn rain, to which these mountain districts are peculiarly liable, and the dissolving influence of the gentle breezes of summer. These fragments of the winter snow-drifts are seldom visible from the roads and highways leading through the open and more distant part of the country, or even along the adjacent valleys, and consequently their existence is known only to those who are familiar with the situations they are known to occupy. In these upland districts but small quantities of grain are grown, the soil for the most part being unsuited to corn crops, while the climate is even more so. Hence the farmers turn their attention to the breeding of sheep and black cattle, the mountain districts of the north of England being mostly sheep-farms; while in various parts of the hilly country in Scotland large numbers of black cattle are bred and sent to the southern markets.

In the sheep districts in the north of England the farms are seldom large, and yet many of the farmers manage to keep pretty numerous flocks of sheep, varying from three or four hundred to the same number of thousands. This, however, is effected only where population is scanty, and where the commons (usually called fells) are very extensive, and upon which the owners or occupiers of the enclosed land or farms enjoy an unlimited right of pasturage, or common right, as it is generally called. Hence it frequently happens that the occupier of 80 or 100 acres of enclosed land, and much of it of but an indifferent quality, if he possess sufficient capital, and the farm be conveniently situated, will keep a flock of sheep of 1000 or 2000 of the small black-faced or mountain breed, the whole of which he summer-pastures on the fells or moors; but a considerable portion of which, particularly the younger and weaker part, he has to send out, at so much per head, into some more congenial part of the country, during the winter season. He could not, however, afford to pay for winter pasturage for the whole of his flock, and therefore the greater portion remains in his own enclosures, or on the lower ranges of mountain land contiguous thereto, during the winter, endeavoring to procure a scanty subsistence among the heath, the rushes, and the bent grass, in the best way they are able. But when the snow lies deep, and the weather is very severe, these animals, hardy as they undoubtedly are, would absolutely starve were they not supplied with a little hay from the homestead. The hay is commonly borne on the heads or backs of the shepherds, in bundles as large as they can possibly wade through the snow with; but occasionally on the backs of horses, where they can travel without much danger or difficulty. The hay is secured into a species of rude net-work formed of withies, and known by the local appellation of creels, in which loose hay, as well as that which is more solid, may be packed firmly and securely. When a snow-storm is of long continuance, the shepherds have enough to do in preventing their flocks straying away, and in supplying them with hay once or twice in the day, according to the severity of the weather; for wading through deep snow, with a heavy load on the head or shoulders, and often where the ground is hilly and broken, is a very laborious business.

Though there are neither fences nor other landmarks on those extensive mountain-ranges, from long usage, or some supposed right or claim, almost every sheep-farmer appears to consider that he possesses some peculiar privilege to the pasturage of that part of the common on which his flock usually feeds. Hence these flocks are rarely much intermixed with each other, the owners or their shepherds taking the liberty to drive or frighten away such of their neighbor's sheep as chance to mix among their own. Although this sort of arbitrary exclusiveness occasionally leads to bickerings and animosities between the parties whose flocks come thus in collision, it certainly prevents a great deal of trouble in separating and assorting at the seasons of sheep-washing, sheep-shearing, sheep-salving, &c., when each flock has necessarily to be divested of all intruders. It does not often happen that these extensive commons are overstocked, notwithstanding there being no limit to the number of sheep in any farmer's flock; but since the pasturage is of so poor a nature that, even when there is abundance of room, and to spare, for all the sheep that may be kept, the flocks never arrive at a high state of condition—nothing like that of fitting them for the shambles,—in case of any crowding or overstocking taking place, the reduced condition of the whole would be a serious consideration to all the parties concerned.

Though sheep, like most other animals, appear to be endowed with a certain degree of instinct, yet it does not follow as a matter of course, that it always operates towards ensuring their safety. Persons who have had the most frequent opportunities of observing them generally appear to have come to this conclusion, that when a storm is approaching they are seldom taken by surprise;

or, in fact, before it actually comes on, they have endeavored to find a place to shelter themselves from its fury: but in cases of snow-storms among the mountains, it very generally happens that the places of shelter from the bitter and piercing blast are places fraught with the greatest danger, for it is there that the drifting snow accumulates in vast masses; and while the flocks that have sought shelter are comparatively warm and comfortable, probably before they are aware the drift will have become piled up in such a manner as to render all attempts to retreat impracticable even were they inclined to do so. Thus it sometimes happens that in the space of a very few hours some scores, nay, perhaps hundreds, of sheep become buried beneath the snow to a depth of several feet. In most parts of these mountain-regions, where the hills are pretty steep, their sides are usually furrowed by several clefts, or deep and narrow ravines, down which trickle the waters of small springs that commonly have their rise in the upper parts of the mountain. The spaces along the sides of the hills, between these respective furrows or dells, for the most part are smooth and bare; so that at the approach of a snow-storm, should these places be resorted to by the flocks as places of shelter, they are soon buried to a considerable depth, since all the snow that falls on the smooth portions of the mountains is hurled into these dangerous ravines.

When a snow-storm comes on unexpectedly, the losses in the flocks of sheep are generally the greatest; for when it is foreseen, the shepherds are on the alert; and though it may not be within their power to prevent some portion of the flock being buried (overblown, as they call it) beneath the snow, yet, in most cases, they are aware of the situation the missing sheep occupied when the storm came on, and consequently know pretty well where to search the drifts for them. When the snow falls extremely light and feathery, the drift will hardly sustain a person's weight for a day or two afterwards but in such cases there is not much danger of the sheep being suffocated under it; but when it falls in a softer state, but yet light enough to be drifted by a strong wind, the drift at once becomes consolidated and heavy, and then it is that there exists great danger of the sheep being quickly smothered.

There are two methods pursued in searching for the missing sheep when a snow-storm has subsided; one of them with dogs,—sheep-setters, or, as they are sometimes called, sheep-finders; the other, thus: three or four persons go in company, carrying with them a couple of long smooth poles, and also some spades or shovels. Those that carry the poles, walk along the drifted snow beneath which they suspect some of the sheep are buried, frequently pushing their poles gently through the snow, in order to ascertain, by the touch, the presence of the missing sheep; when, having made the discovery of one or more, the shovels are employed in opening a way by which to liberate the innocent prisoners. Persons accustomed to this prodding (probing) for sheep, as it is called, can readily distinguish by the touch of the pole the woolly coat of a sheep from any other substance—even from the bushy and elastic heath, or the softer bent and mountain moss. This mode of search, however, is a slow and tedious process where there is a considerable breadth of drift, a great deal of time necessarily being consumed in carefully examining a comparatively small space. Besides, it sometimes happens that the drifts are so deep that an ordinary pole will hardly penetrate them to the bottom, and in that case the system becomes altogether useless.

The employment of dogs to find the lost sheep is by far the better plan, where it can be effected. The sheep-setter is of no particular breed, though, for the most part, these dogs belong to the cur species. But there are so many varieties of the cur—or, at all events, so many coming under that very general term, that it would be impossible to define what peculiar class my father's dog, Corby, the sheep-finder, belonged to. He was large and black, strong-limbed, long and lean bodied, shaggy-coated, with a little white on the breast, as well as between the eyes. His ears were precisely those of the common cur, and his tail—for he was not tailless—was both large and long. Corby from his puppyhood was a favorite in the family, certainly not on account of personal attractions, for these were by no means in his favor, but from sundry good qualities that he was early discovered to possess. He was docile, sagacious, courageous, and faithful, and when he grew up he exhibited an extraordinary sense of smelling, particularly as regarded sheep, and hence he soon became the most renowned sheep-setter through a wide range of country. This rendered him of so much account that it in a manner changed his destiny, for having been brought up with no other view than that of his being employed as an ordinary shepherd's dog, his superior qualities soon procured for him a higher distinction, and he became a privileged character in the sitting-room and parlor; scarcely any services were required of him, except after a severe snow-storm, when he was called upon to exercise his vocation, which, during many years, he lived to do, and with wonderful success.

It was not only upon our own farm and flock that Corby exercised the extraordinary powers nature had endowed him with, for his fame as a sheep-finder extended through all the surrounding parishes; and many were the messages and requests that his owner would permit him to be taken to the distant parts of the upland country, where portions of the sheep-flocks were often buried beneath the snow. We had a servant-boy, to whom the dog was much attached, and when it was convenient to spare the latter to exercise his abilities for the benefit of our neighbors, the former usually accompanied him, for it was not to be supposed that so faithful and sagacious a creature would voluntarily accompany entire strangers. Money, of course, my father would never accept for Corby's services, but the boy that used to accompany the sheep-finder was not so rigidly scrupulous, and many were the shillings and half-crowns that he pocketed in the course of a stormy winter.

The sagacious animal always took advantage of the wind, where that was practicable, and the moment he was told to 'seek the sheep—be careful,' his whole attention was bestowed upon those parts of the snow-drifts that the parties pointed out to him. With his nose close to the surface of the snow, his eyes beaming with intelligence and anxiously watching every motion of the person that accompanied him, his ears in an attitude of

listening, as if he expected to assist the sense of smelling by that of hearing, would he traverse the hard, soft or slippery snowdrift. When he first ascertained that there *were* buried sheep somewhere in the vicinity, he would then examine, with peculiar caution, every part of the surrounding surface, until he appeared to have satisfied himself regarding the precise locality, and *then* he would commence scratching away the snow with all his might. This was a sure signal for those who carried the shovels to commence digging, but the dog was never satisfied unless he were allowed to continue his scratching, as if he were anxious to set the imprisoned sheep at liberty as soon as possible. Many dogs, and particularly those that have a cross of the terrier breed, that are occasionally employed in searching for sheep that have been overblown, the moment they get a sight of the sheep will endeavor to seize upon them with as much savageness as they would attack any wild animal; but Corby knew better than to act thus. In a single severe winter this dog has been known to have set (as finding the sheep in this manner is called) upwards of three hundred sheep, and though it may be true that a portion of them might have been discovered through other means, the probability is that he was the means of rescuing several scores that otherwise inevitably would have perished.

It might be supposed that where sheep are buried beneath eight or ten feet of compact snow, they would be crushed beneath the surrounding weight, if not to immediate death, at least in so severe a manner that they could not long survive. This, however, is rarely the case; and except when the fall of snow is immediately succeeded by a thaw, and suffocation or drowning naturally ensues, very few, comparatively, perish on account of the great depth of the drift, the snow being so porous that respiration is carried on without much inconvenience. Experience has shown that, for the most part, when sheep that have sought shelter in some ravine or hollow perceive the snow rapidly increasing on and around them they get upon their feet and attempt to shake it from their fleeces; and consequently in a standing position become finally enclosed in the drift. With the weaker portion of a flock this is seldom the case, for they commonly continue motionless where they have first lain down, in some sheltered situation, until the snow has accumulated so much that it would be impossible for them to rise did they make the attempt. The consequence of this is, that if they are not rescued for several days, they either perish through actual starvation, not being able to move at all or obtain the smallest particle of sustenance, or their limbs become stiff and paralyzed before death actually takes place. Those, however, that have been buried in the snow in a standing position, should they continue undiscovered several days, are generally found to have acquired sufficient room to turn themselves, and to be able to lie down and rise at pleasure; and where a few have happened to stand close together while the drift was forming, owing to the united warmth of their bodies, as well as their frequent movements, a rather considerable open space is commonly found surrounding them.

Instances have occurred of sheep being under the snow, for three or four weeks, and still surviving, and even for longer periods. But in all such cases they have had the power of nibbling the short grass, grass-roots, and even a portion of the soil, on a space of a few superficial feet, through which means life has been sustained through so protracted a period of confinement. It has been ascertained also that, where sheep have actually been starved to death before they were discovered, extreme hunger had driven them to tear the wool from each other's backs, which only goes to prove the powerful influence of hunger even over these meek and innocent creatures. When sheep are discovered that have suffered a long confinement under the snow, on their being liberated it is necessary to administer food in small quantities, otherwise fatal consequences might ensue; and notwithstanding they may partly regain their wonted vigor in course of time, it rarely happens that such sheep ever afterwards appear in a perfectly healthy condition, and in the enjoyment of all their faculties.

"DISPUTED QUESTIONS IN AGRICULTURE."

For the Farmers' Register.

A writer in the eighth number of the Farmers' Register, after commenting with some asperity on the confused notions which prevail among agriculturists on certain important, but at the same time easily ascertained truths, proposes five inquiriés, and gives under each head the best means of arriving at satisfactory conclusions respecting them.

Of these, I will select two, and give to the readers of the Register what information I have collected from the results of several years' attention to those subjects, though I do not know if that information will be of any service to the writer of the article, gathered, as it has been, from a point very distant from the place where his experiments have been made. But it may avail others, if not him.

The first inquiry I propose to examine is the third in the order in which they are made: it is, "at what distance is it best to plant, and by what modes of culture corn will produce most net profit?"

On the first head of this inquiry, I have satisfied myself, from my own experience and from all the observation I have bestowed upon the management of others, that, in the middle region of South Carolina, corn on upland will, one year with another, on manured and unmanured lands, produce most at the distance of four feet by five, and one stock to the hill. This may seem to most planters too far apart, and that too much ground is lost thereby. If the object with the planter is to produce the greatest number of ears, and not the largest quantity of grain, I will admit that the distance is too great, but not otherwise. Thirty bushels of grain to an acre of Indian corn, on upland, is a large yield—far above the average with the best planters, and above the largest yield to any one, with most. It is easily proved, that an acre of corn planted four feet by five, and one stock to the hill, will produce over that quantity, if each stock will produce an ear that will measure a pint, and it cannot be a difficult matter to make land rich enough to yield a pint to the stock, if

sufficient distance is given. By lessening the distance, or leaving two stocks to the hill, a portion of the nutriment that would otherwise be imparted to the ear will be drawn away to support the increased quantity of stock and the blades thereon, and more fodder but less corn will be made thereby.

Added to this is another reason why I give that distance to my corn. I never take off the suckers, and I leave it to nature to relieve each stock of any superabundance of nutriment in the soil, by throwing off as many suckers as it can support. This last reason may be a very insufficient one to most planters, and I may have given rise to another "*disputed question in agriculture*," but I am fully convinced that nothing is gained by removing the suckers from corn, often injury is done, and always time is lost in the operation. So that though I leave my corn very wide apart at first, it becomes somewhat thicker, and just where I want it—in the best spots; and I have the distance better regulated by that means, than by the most judicious management of my own. On the propriety of leaving the suckers on corn, I could supply some interesting details, and perhaps some useful information, but I would thereby extend this article to two great length; and I will now, very briefly, in reply to the second branch of the above inquiry, state my method of cultivating corn, without, however, claiming for it the best mode, or that which will produce the greatest net profit.

The land intended for corn should be broken up deep, some time before it is planted. Just before planting, it should be thrown up in three furrows (with the *shovel* plough) and crossed (deep) with one furrow of the same plough. If manured, it should be trenched as follows. The hands employed in dropping the manure should use a basket for that purpose that will hold about a bushel. They should walk upon the three furrows, and at each check place one foot, and drop the manure on each side of the foot, and then gently ease up the foot, which will leave an opening in the manure at the bottom of the furrow for the reception of the corn, which should be immediately dropped, and covered. This may all be useless detail to most planters, but I have often seen corn dropped on the manure or covered with it, with decidedly bad effect.

As soon as the corn is fairly up, and attains some three or four leaves, it should be ploughed as deep as it will admit of. All the subsequent tending should be superficial. After the first ploughing it should be *moulded* with the hoe, and then ploughed four times afterwards with the *sweep* plough, and bedded with the hoe, when the corn is just getting in ear. This may seem a very great deal of work to many, who tend their corn with much less, but I have endeavored to answer the question, according to my own method and my belief, "by what modes of culture, corn will produce the most net profit."

I had intended to reply to the inquiry, "Whether it is injurious or beneficial to cut the roots of corn during its growth?" but I have already extended this paper to a greater length than I thought I would do in setting out, and I must reserve for some future numbers the result of my experience on that "disputed question." COTTON.

STATISTICS.

From the Kentucky Farmer.

We copy from the Farmers' Register an article, alleging great errors in the census returns taken under authority of the general government. We have heretofore hinted our own doubts of the correctness of those returns, and have, consequently, been rather shy of publishing tables drawn from them. Of the utility of full and accurate statistics in relation to the multifarious articles of production and consumption, every intelligent man is perfectly convinced; and there is not a statesman in the nation who has not deplored the want of this valuable kind of information. But the essential value and utility of statistical tables depends upon their fulness and accuracy. As they are taken for guides in legislation and in beginning, enlarging and reducing numerous important branches of productive industry, they do a positive disservice, if not substantially correct. It is better even to grope in the dark than to be misled by a false light; as in the former case there is a possible chance of hitting the mark, while in the latter there is none. When legislation is guided by false facts, mischiefs and miseries must ensue. So, if an enterprising merchant, manufacturer, or farmer embarks in some new, albeit legitimate pursuit, under the guidance of statistics, presumed correct but really false, his prosperity is extremely precarious, if indeed his pecuniary ruin is not inevitable.

In reference to the census returns, we are well satisfied it will not do to rely upon them, especially in regard to the various productions of the country. There are probably some districts accurately reported, but the mass of errors in others must vitiate the whole. Possibly the returns of population may be sufficiently accurate for general purposes; but those relating to other matters ought not to be relied on. We do not mean to specify particular items of error when there is so much reason to doubt the correctness of any portion of the returns. We may however allude to the returns of hemp and corn, on which no intelligent man could for a moment rely.

Whether the incorrectness of the returns be due to inherent defects in the system of their collection, or to extraneous causes impossible to be foreseen, and consequently not guarded against in framing the necessary laws, is not for us to say; but that there *are errors*, of a character so serious as to render the returns dangerous, rather than useful guides, admits of clear and indisputable proof. We are fully aware of the great difficulty of framing and executing efficient laws for the procurement of statistic information, and that the most correct returns are to be regarded only as approximations to truth; but still they may be made to approximate so nearly as to serve as useful guides for general purposes.

SEVEN TONS OF GREEN FODDER TO THE ACRE.

From the Maine Farmer.

At first blush, one would suppose that an acre of ground which at any one moment should yield seven tons of green fodder, must be exceeding

rich; but there are a great number of acres, not only bearing this amount now, but which might very easily be made to produce four times this amount, or twenty-eight tons of green succulent food.

We, last May, measured off just one acre of land, and planted upon it Indian corn, making the rows, as near as we could without actually measuring, four feet apart in one direction, three feet in another. This, if we mistake not, will allow us four thousands hills.

Last week, (Aug. 2,) we cut up a hill which had four stalks in it, being, as near as we could judge, an average as to size, and weighed it. The kernels were just beginning to blister or form out, but by no means large enough to boil. It weighed three pounds and a half. This you will say is nothing extra. But if you calculate right, you will find that at this small rate there was actually growing upon that acre of ground seven tons of excellent green fodder, every particle of which, as it should be, would be greedily eaten by cattle. This weight will increase up to a certain point, when it would probably diminish by the drying off of the stalks and husks. This acre of corn may be called "middling" as to growth and luxuriance. There are thousands of better fields in the country.

Our friend I. Bowles, of this town, has a field planted so as to have sixteen thousand hills upon the acre, and we have no doubt that he has nearly that amount of hills. He marked off the rows with a machine so that the hills should be an equal distance apart, and to make the above number of hills per acre. But making allowance of two thousand, for the ravages of worms and missing hills, computing the number at 14,000, and supposing that the average weight is four pounds to the hill, it being a larger variety of corn than ours and highly manured, and you will have 56,000 lbs. or twenty eight tons of green fodder per acre. Now can a person, who has not a sufficient range of pasturage for a cow or two, more profitably employ an acre of land than by planting it to corn, even in the ordinary way? It is true that it will not, when cut, spring up like clover, or the grasses, nor will it come into use until the first of August. But that is the period of the year when pastures oftentimes begin to fail. It would supply a cow for two months in the year, August and September, with 90 lbs. of food per day. We have never had any practical experience in feeding out green food to cattle, or soiling them as it is called, but if 20 pounds of dry hay will be sufficient for a common-sized cow per day, we should think that 45 of green food would be sufficient. This plan may be objected to on the score of its expense. Perhaps more fodder would be obtained at the cost by planting the horse tooth or southern corn in drills, and cutting it as wanted. This variety might not be ready to cut quite as early as our own, but it would continue until frost came, and while it would on the whole yield *more* fodder upon the acre, planted in this way it would continue green longer.

From the Temperance Advocate.

REPORT ON HOGS.

Read before the Agriculturral Society of Newberry, S. C., by Dr. J. N. Herndon, on the 25th July, 1841.

In pursuance of the direction of this society, we beg leave to present some few facts and observations on the subject of raising hogs; and in doing so, we are not so much influenced by the hope of enlightening this society, as by a belief that it is the duty of every member of it to contribute whatever he is able, no matter how small, to the advancement of the objects for which it was created, as well as the importance which we attach to the subject which has been assigned us. And we feel certain, that none will suppose we have magnified its importance when he reflects on the large amount of nearly one million of dollars, which we pay to the western states for the the single article of pork, according to the accounts kept at the mountain toll gates, a few years since, exclusive of large quantities of bacon imported to Charleston, via New Orleans, and from the northern states. It appears to us a strange infatuation, that could induce a state or people to make themselves dependent on other countries for one of the necessaries of life, when they possess all the facilities for procuring it at a much cheaper rate. Though we feel satisfied that it would be a waste of time and argument at this late day, to attempt to convince any member of this society of a fact, which experience has already taught him, that it would contribute greatly to the interest and independence of the people of this state, to produce their own supplies of meat, instead of buying it abroad, and from countries which do not reciprocate the advantages of the trade, by receiving in exchange some of the products of our country.

To the attainment, therefore, of so desirable an end, we shall briefly recommend the plan which we consider best calculated for that purpose.

One of the first and most important considerations should be to select a breed suitable to our purpose. According to our present plan of economy and management, we require a variety which are disposed to grow large, and which attain a tolerable size, even with the scanty allowance which our hogs are accustomed to receive; and not such as require the liberal treatment, and high feeding, which grain countries are able to afford, which could not be allowed them in a cotton growing country, without enhancing their cost to more than their value. We are of opinion the desired breed may be produced, either by crossing our common stock with the large class of improved hogs, which have been introduced, or by crossing the large class, with some of a small class which have been introduced. The large class alluded to include the Woburn, the Calcutta, and the Byfield, all partaking of the same general characteristics. That is, they are all large, coarse, ugly, flop-eared, and of lazy, indolent habits. The small class, before mentioned, comprises the popular Berkshire, the Cobbett, and the once admired but now abandoned Guinea. This class, especially the Berkshire and the Cobbett, are remarkable for beauty and symmetry of form, having great length and thickness, with small head and standing ears, and small and well turned legs, not so short as to render locomotion difficult. With

those materials, we think it would not be difficult to produce hogs of any form, size or habits we may desire.

Having procured a suitable breed, the next object will be, to produce and keep up a sufficient number for our purpose. To this end, six or eight good breeding sows will be sufficient for a stock of 100 hogs. They should be separate from the other hogs, particularly about farrowing time, and not too many of them together, for fear of over-laying or smothering the pigs; and care should be taken to exclude them from lying under houses or shelves, where there is dust, which being inhaled by the young pigs, is very destructive of them, producing irritation and inflammation of the lungs.

Now, having a sufficient number of hogs, of the right stock, the next object will be, raise them in such a manner as to make them cost us less than to buy them. The plan which part of your committee have pursued, and which we beg leave to recommend, though far from perfect, we believe will fully accomplish that purpose. It is as follows: commencing at the first of the year, we are under the necessity of feeding our hogs, through January and February, either on raw corn, or on boiled corn meal, which is far preferable, particularly for the sows and pigs; and if the sweet potatoes could be preserved until that season of the year, and fed to them boiled, with a small addition of corn meal, it would cheapen the cost of the first two months' feeding, very materially. The next two months, March and April, which is much the most difficult season of the year for hogs; they should be fed on fermented slops, made either of corn meal, or the refuse parts of flour, alias shorts. We think fermentation superior to boiling, because it assimilates and prepares the food more completely for digestion, and also, because it is less trouble which with us, is an important consideration; the only trouble necessary is to prepare a vat or tub, of the required size, then put in it one third of meal or shorts, and two thirds of water, and let it stand until fermentation takes place, which, after the first time, it will do very soon, provided a small quantity is left in the vat as a leaven.

Now, by the first of the next months, May and June, the oats will be large enough to graze on, which, with a small addition of fermented or boiled slops, will keep your hogs in growing order, until your stubble fields are opened, about the 1st of July. And to assist and cheapen the feeding of May and June, we recommend the cultivation of the different kinds of squashes, and also the sugar beet. They may either be fed raw, or boiled, which is preferable.

Now, having brought your hogs to the 1st of July, the difficulty is passed. If you can keep them in growing order until this time, they will fatten to the end of the year, provided you sow as much small grain as every planter in his country should do; that is, at least one-third of the land which he has in cultivation, leaving the other two-thirds for corn and cotton. This amount of stubble land, by the grain and grazing which it affords, will keep your hogs growing and thriving until the pea fields can be opened, from which time until Christmas, they can be kept fat on a succession of pea fields. We are aware that there is a prejudice with some, against feeding stock hogs on peas, but we are convinced, from experience, that it is entirely unfounded, and that with plenty of salt, and plenty of water, there is nothing better or cheaper for feeding hogs; and we earnestly recommended to every planter, to plant at least a hill of peas for every one of corn; they will not only keep his stock hogs in good order, for near three months, but will almost entirely supersede the use of corn, in fattening his pork.

Let us now compare the cost of pork, raised upon the plan which we have proposed, with the price we are compelled to pay the Kentuckians, and we think it will not appear strange that those planters, who raise their own supplies of pork, are more prosperous, and get rich faster, than those who buy it.

We have proposed that the hogs should be fed on corn or its equivalent in value, for the first four months of the year, and that some corn should be given for the next two months; but allowing for bad management, we will suppose that they are fed for the first six months. We have found, on trial, that two bushels of corn in the ear per diem, will be sufficient to keep a stock of 100 hogs in growing condition for the first six months in the year, (together with the adjuncts before mentioned,) which is the only portion of the year in which the expense of feeding is felt; the two bushels of corn in the ear will be equal to one when shelled, and allowing 100 ears to the bushel, which is nearly correct, it would be giving one ear per diem to each hog; it would thus require 300 ears, or little more than three and a half bushels to bring the hog to two years old, which we think is the proper age for fattening, because then they fatten kinder than when younger, and beyond that age, they do not improve sufficiently in weight to warrant the expense of keeping. In addition to which, we think that after a good run on a pea field, one and half bushels of corn will be sufficient to complete the process of fattening. A part of this committee have found, that with the management herein recommended, a hog of the right stock, may be made to weigh at two years old, 200 lbs. neat. The stock alluded to is a cross of the Cobbett and Calcutta, though we have no doubt but that any of the crosses before mentioned would do as well; so that 200 lbs. neat pork, instead of costing $12 to be paid in cash to the Kentuckians, costs you five bushels of corn and the run of your stubble fields, which would be lost, if you had no hogs; and the run of your pea fields, which only cost you the trouble of planting; for they require no gathering, and of very little injury to your corn crop, and of great service to your land. But to insure success in raising hogs, it will be necessary that their health should be attended to. The diseases, to which they are most liable are inflammation of the lungs and throat, poisoning by mushrooms, kidney worms, and mange and lice. The first is generally produced by lying in dusty situations, though very often it exists as an epidemic, affecting the hogs of a whole neighborhood at once. The symptoms are wheezing, and a drooping, sluggish appearance. We consider tar given in the feed, or by drenching, as the best remedy to prevent or cure this affection, by its stimulating action on the exhalents of the parts affected. The poi-

sonous effects of mushrooms are much more easily prevented than cured, for which purpose they should be either kept up during the wet seasons, which promote the growth of mushrooms, or salt and tar should be given frequently at those times, with the view of invigorating and guarding the stomach against the pernicious influence of the mushrooms; and salt should be given at least once a week through the whole year, for the purpose of promoting the general health of your hogs. The kidney worm may generally be cured by applying a tar or pitch plaster over the region of the kidneys, first having shaven off the hair and lacerated the skin. The best manner of getting clear of mange and lice, is to exclude your hogs from lying about your barn-yards and stables, and giving them sulphur, and anointing them with sulphur or mercurial ointment. There are some other points connected with this subject, which we intended to have noticed, but feared that we might be trespassing on your patience, though we hope that we have said something which may aid and encourage our people in freeing themselves from the dependence which they have long felt on the west, for one of the principal necessaries of life.

THE PRINCIPLES OF BREEDING CATTLE.

From the Franklin Farmer of 1838.

The number of agriculturists who are devoting themselves to improving their cattle is so great, and increasing so fast, that authentic information on the principles of breeding cannot fail to be highly interesting and useful.

I have therefore concluded to present to the public through the columns of your extensively circulated and popular journal, five or six short articles upon the subject, arranged under the following heads:

1st. The grand principle that like produces like.
2d. The comparative influence of sire and dam.
3d. Breeding in and in.
4th. The value of good keep in breeding.
5th. The proper age for breeding.

The principles and facts which will be presented in these articles, will be almost entirely selected and arranged from that most elaborate and authentic treatise on cattle published under the superintendence of the British Society for the diffusion of useful knowledge. On this account the writer may ask for these articles the greater attention, as this work is of the highest authority both in England and America. From this work (which should be in the hands of every farmer) I will extract largely in the present article, which will be devoted to the illustration of

1.—*The grand principle that like produces like.*

That which lies at the foundation and improvement of every stock, or the successful management of it, is the fact, the common but too much neglected axiom, that "like produces like." This is the governing law in every portion of animated nature.

There is not a deviation from it in the vegetable world, and the exceptions are few and far between in the lower classes of animals. When in the higher species the principle may not seem at all times to hold good, it is because another power, the intellectual—the imaginative—somewhat controls the mere organic one; or in many instances the organic principle is still in full activity, for the lost resemblance to generations gone by is pleasingly and strongly revived.

This principle extends to form, constitution, qualities, predisposition to and exception from disease, and to every thing that can render an animal valuable or worthless. It equally applies to the dam and to the sire. It is the foundation of scientific and successful breeding.

Let it be supposed that the cattle of a certain farmer have some excellent qualities about them, but there is a defect which considerably deteriorates their value, and which he is anxious to remove. He remembers that like produces like, and he looks about for a bull which possesses the excellence which he wishes to engraft on his own breed, he tries the experiment, and perhaps to his astonishment it is a failure, and his stock may have deteriorated instead of improved. The cause of this every day occurrence was that the new bull had the good point which was wanting in the old stock, but he, too, was deficient somewhere else, and therefore, though his cattle had in some degree improved by him in one way, it was counterbalanced by the inheritance of his defects. Here is the secret of every failure. The newcomer, while he possesses that which was a desideratum in the old stock, should likewise possess every good quality which they had previously exhibited; then, and then alone, will there be an improvement without alloy.

This principle was the secret spring and the ground work of all Mr. Bakewell's proceedings and success. The prompt adoption of this principle enabled that distinguished breeder to build up the famous family of new Leicester long horns. By judicious crossing, the excellencies of several animals were happily united in one individual, and the good points were confirmed and rendered constitutional, by uniting animals which contained them. The skeletons or separate joints or points of some of the more celebrated of his animals were preserved or pickled, and hung side by side for the purpose of inspection and improvement. Some joints of beef, the relics of Old Comely, the mother of the stock, were particularly observed; the fat of the surloin on the outside was four inches in thickness. A four year old steer of this family weighed three thousand four hundred and seventy-two pounds. The four quarters of another of this breed weighed nineteen hundred and eighty-eight pounds, tallow two hundred pounds, and hide one hundred and seventy-seven pounds.

2.—*The comparative influence of the sire and dam.*

If the preceding number established the principle that *like produces like*, it is obvious that the farmer who has a good stock of cattle to breed from will rear good stock, and will improve them; but if he has a bad stock to start from, the produce will be indifferent, and will grow worse. How obviously important is it then that his stock, both male and female, should be of the best quality which he can possibly obtain.

The question as to the comparative influence of the sire and dam is a difficult one to decide. That farmer will not err who applies the grand

principle of breeding equally to them both. In the present system of breeding, most importance, (and that very justly,) is attributed to the male. He is the more important animal on account of the more numerous progeny that is to spring from him, and thus his greater general influence; and therefore superior care should be bestowed on the first selection of him for rearing. He should, if possible, always be, in point of blood, of a superior degree to the stock to which he is to be bred; and besides, the farmer should study him closely, and be assured that he possesses, in more than a usual degree, the characteristic excellencies of the breed which it is wished to impart to his stock.

When this case, as to the possession of such combination of good points, has extended from sire to son through several successive generations, it may readily be supposed that he will possess them in a higher degree than the female can. They will be made, as it were, a part and portion of his constitution, and he will acquire the power, of more certainly, and to a greater extent, communicating them to his offspring.

In this way the influence of the sire may, in well bred animals, be considered as superior to that of the female; but her's is always great, and must not be forgotten. In Arabia where the mare is the object of chief attention, and her good qualities are carefully studied and systematically bred in her, the influence of the female decidedly preponderates; and on the same principle, that of the highly bred cow will preponderate over that of the half bred bull. Her excellencies are an hereditary and essential part of her, and more likely to be communicated to her offspring, than those which have been only lately and accidentally acquired by the bull with no pedigree, or with many a blot in it. Custom and convenience however induce the generality of breeders to look most to the male.

The question whether the sire or dam has the more influence in controlling the sex of the offspring, is perhaps not less difficult of decision. Cows generally breed males and females alternately; but their habit in this particular is not so uniform as to contravene a principle which has lately been promulgated chiefly by French writers on breeding. One of them mentions a great number of cases which establish satisfactorily the principle, that *the animal which is in the greatest vigor*, (health, age, constitution and flesh being considered,) *at the time of commerce* will generally fashion the sex. For example, an old and declining cow is bred to a young and vigorous bull, other things being equal, the produce will be male, because the bull was in the greatest vigor.

These principles lead to the statement of another, which is equally as important, and if possible better established, and perhaps less understood. If a man has a superior milch cow and wishes to raise milking stock from her, the common plan is to save her heifer calves. But according to a principle of breeding, sustained by facts as well as theory, by far the better plan would be, to save a bull calf from this cow, and his stock when he is put to breeding will have the excellent quality of his dam, and be, like her, superior milkers. For example, Cleopatra was an extraordinary milker, according to this principle her heifer calves may, or may not, make good milkers; but her bull calf Frederick, having her character and qualities bred in him, will communicate them to his stock; and his heifer calves will be, like his dam, superior milkers.

This last principle suggests an important consideration in selecting a breeding bull, viz: that he be descended from a superior milch cow.

3.—*Breeding in and in.*

The judicious breeder will not too long confine himself to his own stock, unless it be very large. The breeding from too close affinities,—the breeding *in and in* as it is called, though it has many advantages to a certain extent, in the hands of most skilful and judicious breeders; though it may be pursued until the excellent form and quality of a breed is developed and established, and was the source whence sprung the superior cattle and sheep of Bakewell, and to some extent of the superior short horns of Mr. Colling; yet to it also must be traced the speedy degeneracy—the absolute disappearance of the new Leicester cattle, and, in the hands of many an agriculturist, the impairment of the constitution of the new Leicester sheep.

Bakewell was a master spirit in breeding, and it cannot be denied produced a breed of cattle worth the efforts of such a skilful agriculturist. The principle on which he seemed to act was novel, bold, and for a time a successful one. Some of his cattle were extraordinary illustrations of the harmlessness of such a system; but he had a large stock on which to work: a veil of mystery was thrown over the most of his proceedings and no one knew his occasional deviations from this rule, nor his skilful interposition of remoter affinities when he saw, or apprehended danger.

But what has now become of the new Leicester or Bakewell cattle? where are they to be found? It was a bold and successful experiment, and seemed for a while to answer the most sanguine expectations of that skilful and spirited breeder.

In districts, in which experiments were carried on, it established a breed of cattle equalled by few; and it enabled the long horns to contend, and often successfully, with the heaviest and best of the middle horns. But no sooner had the master spirits of the day disappeared, than the character of the breed began imperceptibly to change. It had acquired a delicacy of constitution inconsistent with common management and keep; and it began slowly but undeniably to deteriorate. Many of them had been bred to a degree of refinement, that the propagation of the species was not always certain. The breed itself gradually diminished; in some places it almost disappeared. The reader may scarcely give credit to the assertion, but it is strictly true, that in 1833 there was not a single improved Leicester on the Dishley farm; nor a dozen within the circuit of as many miles. It would seem as if some strange convulsion of nature, or some murderous pestilence, had suddenly swept away the whole of this valuable breed.

The above remarks are in substance taken from that valuable treatise on British cattle, before alluded to. In Kentucky, though the principle of breeding *in and in* has met with general disapprobation, yet it has been more or less practised by many breeders. To one of whom allu-

sion will be made, not from unkindness, but merely for example; for he, like Mr. Bakewell of England, is a monument to illustrate the impropriety of the practice. This breeder (now less notorious) had, several years since, one of the finest herds of milking and breeding blooded cattle in Kentucky, and deservedly had high reputation as a breeder. But, vainly imagining that they were far superior to all others, proper crossing was neglected; the stock began to diminish in size; many of them became hornless; and their constitutions were impaired, in consequence of which they suffered more from cold in winter, and were more liable to disease in summer; the murrain soon got among them, and played such sad havoc in one short season, that at present, only a few venerable animals remain, of that once superior but ill-fated herd.

With this short digression we will again quote our valuable author. "It has therefore become a kind of principle with the agriculturist to effect a change in his stock every second or third year; and that change is most conveniently effected by introducing a new bull. This bull should be as nearly as possible of the same sort; coming from a similar pasturage and climate; but possessing no relationship,—or at most a very distant one—not related to the stock to which he is introduced. He should bring with him every good point which the breeder has labored hard to produce in his stock, and if possible some improvement; and especially where the old stock may have been somewhat deficient; and most certainly he should have no manifest defect of form, and that most essential of all qualifications, a hardy constitution, should not be wanting."

4.—*The importance of good keep.*

In the rearing and improvement of a stock of cattle, nothing, perhaps, is of more importance than the subject at the head of this article. Even the powerful excellence of blood and family are unavailing and insufficient long to sustain a valuable herd, without this indispensable accompaniment. Upon this subject our valuable authority has only a few remarks, but they are very comprehensive and decisive.

"There is one circumstance, however, which the breeder occasionally forgets, but which is of as much importance to the permanent value of his stock as any careful selection of animals can be—and that is, *good keep*. All good stock must be both bred with attention, and *well fed*. It is *necessary* that these *two essentials*, in this species of improvement, should *always accompany each other;* for without good resources in keeping, it would be vain to attempt supporting a capital stock. This is true with regard to the original stock; it is yet more evident, when animals are brought from a better to a poorer soil."

Let it not be imagined that good keep is thus indispensably necessary, only to the improved blooded cattle, for it is invariably true that mean feeding will produce mean animals, no matter what may be the breed. The owner of the hardy scrubs cannot reasonably expect them to produce large and well fatted carcasses, or abundant secretions of milk, without rich pasturage in summer, and bountiful supplies of nutritious food in the winter.. I believe it is conceded that blooded cattle require more luxuriant pasture and richer food, to cause them most fully and most rapidly to develope their excellencies, than the scrubs usually receive, nor is it matter of wonder or regret; for how can it be expected that an animal which secretes two gallons of milk, or gains two pounds of flesh daily, should subsist upon as little as one which secretes or gains but half that quantity!

This great necessity of good keep begins with the very existence of the animal; and nature, as if to teach us the lesson, ere its entrance into the world, has provided for its use a superabundant store. As the first year of the animal's existence is naturally the period of most rapid growth, so also it should be the period of most luxuriant feeding. As the most liberal provision is now most amply repaid, so also is the slightest neglect the cause of irreparable loss. Instances are not uncommon of calves which have gained a hundred pounds a month, for several months, upon kind feeding; and thus, in a few months, attain a size, which, perhaps, is not attained in the whole existence of those which are consigned to a scanty allowance of milk, and the more scanty grass of the yard or orchard.

The kind feeding of the calf is scarcely more bountifully repaid than good keep to the dam. If she is kept in good condition she will not only be more healthy, but will conceive more quickly and more surely: will bring a better, and a more thrifty calf; will pass through the dangers of parturition more safely, and will cleanse herself, and be restored, more speedily than if she is emaciated and exhausted by poor or scanty feeding.

Neither is good keeping without its genial influence even upon the sire of the herd. It is unquestionably true that a bull which is fed upon generous food will be a surer and a better breeder, than if his subsistence was poor and scanty. True, he neither stands to the pail, nor draws at the yoke; but when fully engaged his labors and excitements are scarcely less exhausting than are the duties of the cow or the ox; generous diet is therefore necessary to sustain him in imparting a vigorous constitution and fine spirit to his offspring. The observing farmer will readily avoid an extreme in this matter, by which heifers are sometimes made too fat to breed, and bulls too fat to be useful. But this is an extreme far less to be shunned, because far less dangerous than the other.

5.—*The proper age for breeding.*

"The proper age at which the process of breeding may be commenced will depend upon circumstances. Even with the early maturity of the short horns, if the heifers could be suffered to run until they were two and a half, or three years, they would become larger, finer, and more valuable; and their progeny would be larger and stronger. But the expense of keep for so long a time is a question that must be taken into serious consideration.

"The custom, which at one period was beginning to be so permanent in the breeding districts of putting the heifer to the male at one year old, or even at an earlier period, cannot be too much reprobated. At the time when they are most rapidly growing themselves, a sufficient quantity of nutriment cannot be devoted to the full develope-

ment of the fœtus, and both the mother and the calf must inevitably suffer.

"From two to two and a half years old, according to the quality of the pasture, will be the most advantageous time for putting the heifer to the bull. In fair pasture the heifer will probably have attained sufficient size in two years. If the period is prolonged after three years, and especially with good keep, the animal will often be in too high condition, and there will be much uncertainty as to her becoming pregnant; though, in general, putting on more scanty subsistence for a short time will set all right. At an early age there will often be danger in calving, from the heifer not having attained her proper size.

"It is evident from this that the bull should not be suffered to run with the young stock; and it is becoming more the practice, and often advantageously, to separate him from the cows altogether, except when in season. That which has been said of the best age for breeding the cow, will equally apply to the bull. It is absurd and dangerous to begin to use him as some have done when a yearling. He will come into season at two years old—he will be better at three; and although the farmer may not deem it prudent to keep him more than three years, he may then be sold advantageously, in his full prime, to another breeder."

The above extract is taken, *verbatim*, from the invaluable treatise on British Cattle; the principles stated, are no doubt drawn from the extensive experience of English breeders. They are so totally at variance with the practice of most Kentucky breeders and farmers, that it may not be amiss to confirm them by the following extracts from Lawrence's Farmers & Graziers' Guide.

"These remarks apply with the greatest force to those inconsiderate persons who, anxious to anticipate their most sanguine hopes, injure their stock by putting their heifers prematurely to breed; and who, did they but endure another season of necessary delay, would give time for nature to perfect the work of maturity, and ensure a healthy offspring; but those persons by an injudicious haste destroy the stamina of the animal's constitution, entail a feeble and unhealthy issue, exhaust the powers of the devoted animals, and and not only shorten her life, but occasion many and serious disorders.

"Heifers should not on any account be put to bull before they have passed the second year of their existence; indeed if three years be allowed, the much better condition of the calves will amply repay the one year's delay." R. W. S.

PRESERVATION OF TIMBER.

From the Philadelphia Ledger.

We perceive that a committee of the House of Representatives have suggested the employment of *mineralized timber*, in the construction of the proposed bridge over the Potomac, between Georgetown and Washington. The process of mineralizing mentioned is that of Dr. Edward Earle, of this city. We can scarcely say whether this suggestion on the part of the congressional committee has occasioned us the more pleasure, or the more surprise.

We say surprise, for we have come to this pass, that it is really a matter of astonishment to see Congress enter upon the consideration of even the most obvious improvements in science. Notwithstanding all that has been said of the national enterprise in such matters, we are one of the most dilatory people upon the face of the globe, in availing ourselves of authenticated and established inventions. In such things as *morus multicaulis*, we are prompt to a fault; but where the new scheme is a point of certainty, and *not* of speculative attempt, we are the most intolerable laggards in Christendom.

Here, for example, is this proposal of Dr. Earle for the preservation of timber by the process of mineralization. It is spoken of by the press, generally, as something new under the sun; and Congress, looking wise, takes it up with its thumb and forefinger, very much as a naturalist would take up a nondescript insect which had escaped the scrutiny of Swammerdam, or a quartz not to be found in Henwood or Carne—mentioned neither by Lyell, Philips, Murchison or Featherstonhaugh.

We are not prepared to say, just now, what is the precise nature of the claims of Dr. Earle; but if these claims are to supersede those of Sir Humphry Davy, or of the French chemist, M. Boucherie, they must be of an importance truly wonderful. These eminent gentlemen have *demonstrated* (the former long ago, and the latter of late days) a mode of so preparing timber by mineralization, that it shall be *impossible to destroy it by rot.* They have shown that the process is exceedingly simple and *cheap*, and that, by its means, qualities of the highest value (besides that of durability) are imparted to the wood. The plan of Sir Humphry Davy has been long in operation in Europe, and that of M. Boucherie has engaged the attention of the French government for some time past. In the face of these facts, (and we will show them to be facts) does it not appear unaccountable that we should continue, day after day, in the absurd practice of building houses and fences of unprepared timber, and of laying with it railway structures, requiring a continuous repair that absorbs a great portion of profit? Does it not appear especially remarkable that our government will persist in building ships of unprepared wood, which fall to pieces before a launch can be effected, (as in the case of the vessel now on the stocks at our navy-yard,) when, at an equal cost *or at a less*, we might have men-of-war, to whose duration it would be impossible to assign a limit? Of course it does appear *very* strange, and rather than suppose ourselves or our government guilty of such supineness, or of such imbecility as is here imputed, the reader of this article will be inclined to fall back upon the belief that there is some error in our statement—in short, that some good reason exists for continuing the old fashioned practices.

Now this is a subject of manifest importance. It is important, whether we regard the supposed improvement itself—an improvement which comes *immediately* home to the bosoms and business of every man in the community—or whether we look to the conduct of that government which is bound to encourage the true and the useful, without reference to *party* or to favoritism.

Thinking thus, we will recur to this subject again, and endeavor to show, as concisely as possible, what is the exact nature of the mineralizing process of Sir Humphrey Davy and of M. Boucherie—also, more fully, what are the advantages to be derived from mineralization, with the *data* and authorities in support of the process. It will be found that, although the public mind in America is absolutely uninformed upon this whole topic, there is really no question whatever among the scientific in regard to the importance of the discoveries alluded to, or the feasibility of their practical application.

BREEDING OF STOCK.

From the Franklin Farmer (of 1838.)

Having, to some extent, been engaged in this business for the last thirty-five years, and not altogether an inattentive observer of the various fluctuations which have occurred during that time in this important interest, I have thought it might not be entirely useless to address a few reflections on this subject, to those interested in breeding and raising stock, through the columns of your useful paper.

The abundant yield of the rich soils of the valley of the Mississippi, under a proper course of culture, enables the grazier and feeder of stock to increase his operations to an extent unequalled by that of any other section of our union. The grand desideratum then is so to use his means as to make them most productive. I will enumerate some of the errors which have fallen under my own notice. About thirty-five years ago, great exertions were used to introduce the thorough-bred horse, and various fine animals were brought to Kentucky, of English importation. But few of them were purchased there, of celebrity, until they became so old as to have fallen into disrepute. It is a matter there of general notoriety, that between the age of ten and twenty years, is the time of life, when the immediate descendants of the horse are most powerful, muscular, vigorous, and capable of endurance. But after he has reached twenty, it rarely happens, however celebrated may have *been* his produce, that they have afterwards any claims to celebrity, as runners.) Those interested in the success of the importation of that day, had the address to convince the popular mind that the mixed blood which were then raised should be abandoned, and the thorough-bred take their places. All who were able to raise the means of breeding to the full-bloods did so, and the consequence was degeneracy ensued—their produce were weakly, delicate, and restive—possessing few, if any, of the qualities requisite for the saddle, or farm. Such as were not runners, (and of that number there were very few,) were unfit for any other valuable purpose; many at four years old would not command the money it cost to have them sired.

Disappointed with the bad success attendant on this experiment, another still worse was resorted to. Large, coarse, clumsy horses, of the Conestoga breeds, were then brought; they also were freely patronized, and the opposite extreme followed, their produce were of unwieldy size, clumsy, deficient in wind, hard to keep, and utterly unfit for domestic use or foreign market. Next came the Jack, and breeding of mules for many years was attended with great success, owing to the extensive demand and high prices paid for them by the planters of the South. But this, like most other pursuits which the great body of western producers turn their attention to, is now overdone. Nearly all the breeders are either raising the blood horse or the mule, neither of which are suited to the saddle, carriage or stage; the one being too restive and weakly; the other too obstinate and slow. The object of the foregoing remarks is not to discourage breeding of either of the classes of stock above enumerated or to detract from the great merits of the blood horse, but to suggest the advantage of dividing, and equalizing this business, so as to insure success to all. It is idle to suppose that mares of coarse blood and clumsy, or of diminutive size, will produce racers. Equally so would it be to expect small, delicate, blood mares to produce large and saleable mules. The large, coarse mares should be bred to the choice Jacks of the country; the smaller mares to the substantial, well formed, active half-blood horse, and the thorough-bred (of good size only) to the full blood, and proven race-horse. By attentively observing these rules of breeding, great improvement would be made in each variety of stock, and a sufficient number of all kept in the country, to supply the home and foreign demand, all commanding fair prices. The great error to be avoided is that of running with the popular current from one extreme to another, unmindful of the inevitable consequence of increasing the supply beyond the demand. S.

THE NECESSARY CONSEQUENCES OF ADMITTING THE PLEA FOR THE CONTINUED SUSPENSION OF SPECIE PAYMENTS.

Since the publication of our preceding number, there have appeared, for the first time, several articles in the newspapers protesting strongly against the resumption of specie payments by the banks of Virginia, at the time fixed by the existing law; and indeed *at any time* before the banks of Pennsylvania and Maryland shall pay specie. We do not propose to notice any articles which, judged either by their manner, or their source, or both, are obviously part of the bought services of mercenary bank hirelings. But there are writers whom we believe to be, and respect as, disinterestedly speaking in behalf of what they deem the public good; and in regard to *their* objections, and *strictly to the question* only, we shall make a few remarks.

And first, let it be observed that no one has pretended to advocate or justify the general procedure of the banks of Virginia in any one thing of the numerous particular abuses that we have condemned, as being right *per se*, proper, or beneficial to the community and to general interests.

Nor has *but one act*, or particular course of action, been justified and defended, even as a matter made necessary by the extraneous and unjustifiable action of foreign banks. This particular matter, which alone, among the host of banking abuses, is thus defended, is the suspension of specie payments by the banks of Virginia, and (as now for the first time avowed by any defenders) for the indefinite time that other states may permit the payments of their banks to continue suspended. Therefore, we wish it to be observed, the defence of the banks is limited to one charge only—leaving, as it would seem, all the other and far more important grounds of charge unanswered and untouched. When so much has been said and published *in defence* on one point only, is not such silence an indication of the other alleged abuses being altogether indefensible?

We wish to treat the subject fairly, and our opponents respectfully; and we shall aim to present the purport of their objection in its full force. It is said that the notes of the banks of Virginia are received, in the ordinary course of trade, in Baltimore, Philadelphia and other places, whose banks are not paying specie; and if our banks were to resume payment while the banks of these places in other states still refused payment for their own notes, that brokers would collect the Virginia notes, demand the specie for them from the banks, and drain the banks of specie as long as notes could be thus obtained for the purpose; and, as the notes of our banks in circulation amount to more than thrice their stock of specie, and as it is impossible for one dollar to pay a demand for three, that the foreign brokers, and the other demands which their action would induce, would draw all the specie, leaving two-thirds of the notes still unpaid. And hence the conclusions to which these reasoners come, (and which, whether named or not, are unavoidable on these premises,) that the banks of Virginia ought *not* to be compelled to pay, until those of Maryland, Pennsylvania, &c., shall also pay.

There are two ways of meeting this assumption. One is to show that the premises are unsound, at least in part, and therefore that the deductions, if not altogether illegitimate, at least require much abatement. But though this may be done, and we trust satisfactorily to unprejudiced minds, it is not properly incumbent on us to prove, or offer to prove, *negative propositions*. It belongs to those who assert these propositions to prove the existence of the premises and the extent of their operation in results. Until that be done, or at least attempted, it is enough for us, on the opposite side, to deny that the premises, and of course the conclusions, are correct, or that their importance is such as to justify the continuance of the weighty evils of an irredeemable currency for an indefinite time. Whenever the advocates of the banks, and of non-resumption, shall abandon mere loose assertions of disastrous results, and attempt to fully exhibit facts as premises, and thence draw proper conclusions, we shall be ready to meet their *argument*. But there would be neither propriety nor utility in our undertaking to prove the *negative* of their unproved and unargued *positive* propositions—which indeed are but loose unsupported assertions of greatly exaggerated facts.

At this time we will merely take a rapid and concise view of the question in a different aspect. For the sake of argument, and to save useless words, we may even admit as sound and true all the premises above stated; and then the mere exhibition of the result, to which the argument inevitably and confessedly leads, will be enough to upset the whole policy advocated, in the opinion of every unprejudiced and disinterested advocate of the welfare, and especially of the *independence*, of the commonwealth of Virginia.

Admitting then all that is claimed as premises for the oppisite side of the question, it comes to this conclusion: The policy of Virginia in the important matter of the currency—its stable or its fluctuating value--its rate and extent of depreciation, if depreciated—the fluctuation of the *apparent value* of land and other property caused by *real depreciation* and fluctuation of a vicious paper currency—all the losses to the ignorant and honest, and gains to artful speculators—the enormous moral as well as political and pecuniary evils thence certainly accompanying such a condition of things—all these important elements of the policy and the welfare of our commonwealth are to be *always* totally dependent upon the legislation, *not of Virginia*, but altogether *upon that of Maryland, Pennsylvania, and other states!!!* And we the people of Virginia, claiming to have equal rights with, and certainly separate interests from, those (*quoad hoc*) foreign states, are to submit, now and always, to be pillaged and oppressed so far as fraudulent banking and depreciated paper currency can serve to pillage and oppress, at the will and pleasure of the legislatures of foreign states, that have, or believe they have, an interest in continuing the system of pillage and oppression!!! This is the general proposition, or statement of the general principle; and independent freemen will not rest their decision of approval or rejection on the mere balance of the *possible* pecuniary profit to be derived from such submission. It would be a matter of universal conviction, that no pecuniary gain to the commonwealth could compen-

sate for such an unlimited and unknown extent of vassalage to foreign states.

Let us illustrate this state of vassalage.

When the constitution of Virginia was under revisal and amendment, suppose that formal proposals had been submitted to the Convention, from the governments of Pennsylvania and Maryland, offering each to pay to Virginia $100,000 a year, for the perpetual privilege of those states making the currency of Virginia, its depreciation, the market value of property, the fluctuation of value &c. &c., to accord precisely and fully to such extent as those states might choose to do for themselves by means of their irredeemable paper. And even limit the monstrous supposition of the rate of the extent of evil (though it is indeed unlimitable,) to just what has existed in Virginia for the last five years, and what must exist for the next five, or until the resumption of Pennsylvania shall cease, if her existing law be indeed held sacred. We may safely assume that not one voice in the Convention of Virginia would have been found in favor of yielding, for the consideration of $200,000 a year, those rights and interests of Virginia which are yielded *for nothing* by the argument of our present opponents. And such yielding would have been deemed as unprofitable in regard to the mere pecuniary interests of the people of Virginia, as it would be degrading and infamous to an independent commonwealth.

But this argument for continued supension does not go as far as it admits of being fairly carried. If the example of Pennsylvania and Maryland in the general matter of suspension ought to be always followed by Virginia, so the extent of such suspension, as to mode and legal limit of time, should also be conformed to.

Now Virginia preserves, by the act of last session, something like a specie currency of small change, by compelling the banks to redeem their small notes (for $1 and $2) in specie. These small notes are carried in for specie, much to the annoyance and diminution of profit of the banks; and doubtless all of these notes that reach Baltimore and Philadelphia are collected for that purpose by the brokers. To avoid this one remaining feature of specie-paying by our banks, and its certain consequences in the presenting them by brokers for redemption, our legislature certainly ought (to carry out the argument for the banks,) to make these small notes irredeemable; and, to supply the want of small change, permit, as in Maryland, bills to be issued by corporations or individuals as low as for 6 cents. Then, no specie could be drawn from our banks, and there would be none of it in circulation; and the nuisance (or the blessing) of a discredited and greatly depreciated "shin-plaster" currency, such as exists in Maryland, would be universal in Virginia. Without this to complete the benefit, the existing *partial* redeeming law of Virginia leaves the banks and the country fully exposed to at least a part of the alleged evils of resumption of specie payments.

Again: As the argument for continued suspension claims that the banks of Virginia ought not to resume payments until those of Pennsylvania and Maryland resume, (we omit all other neighboring states, to which the rule will also apply—) let us see what is the shortest time at which such *permission* to resume may be expected. By the very infamous law of Pennsylvania, passed by the gaining of bribed votes in the last hour of a long session, the legislature of the bankrupt commonwealth of Pennsylvania made a bargain and league with her fraudulent banks, by which both the state and the banks were to aid each other in cheating the community. The banks were allowed by this law to continue their suspension of payments *for five more years from that time;* and as a condition of this unheard-of measure of fraudulent privilege, the indulged banks were to lend to the state three millions of dollars, for the same five years; with the proviso, that if the loan should not then be paid, the bank suspension shall still continue, until the loan shall be paid. Here, then, is a suspension of payments certainly fixed on Pennsylvania, and of course (according to the argument we oppose) upon Maryland and upon Virginia, for five years at least; and that merely that a government, which is afraid to lay taxes to pay the interest of its debts, might be enabled to *borrow* irredeemable bank notes for that purpose. But that is not all, nor half. Can any man believe that a government acting thus, and for such inducements, *will* pay the principal so borrowed within 5 years? And if not, then the suspension is to be continued, not only on Pennsylvania, but as a consequence on Virginia, until the debt shall be fully paid. And now, we put it to the farmers of Virginia, to the people in general, and even to our honest and disinterested opponents, (who have received from the bank organs as true, and have used this argument, and wish to apply the rule for the continuation of suspension in Virginia,) whether they are willing to abide the time, the pleasure and the interests, of the government and the banks of Pennsylvania, for the commencement of the resumption of pay-

ments in Virginia? If they are *not* willing to abide the *full time*, it will be useless to wait for a part; for if we wait four years for Pennsylvania and Maryland to resume, and then resume before them, all the evils which it is alleged would occur from resumption next January, would occur as certainly and as injuriousiy (if indeed at all) at the later time.

In a word—this argument against resumption at any fixed time, and before other states shall resume, leads but to one conclusion. It is in fact (though not so meant by most of those who urge or submit to it,) as full and imperative for *a perpetual irredeemable paper currency* as it is for its continuance during the pleasure of Pennsylvania and Maryland.

And if the people are not prepared for a suspension to be continued as long as five years more—and still less for ever—and for the perpetual policy of irredeemable and depreciated paper currency, they should act speedily to compel resumption of bank payments as early as possible. The longer it is put off, the more difficult it will be to be brought about. Almost every packet that sails from this country to Europe carries a large amount of specie, which as a regular commercial business is a necessary consequence of the non-specie paying policy of this country; and, so far as the quantity of specie in the United States has a bearing on the ability of the banks to redeem their notes, every month's additional delay will increase that obstacle to resumption.*

The non-paying banks (if really solvent) could prepare to resume specie payments, and beneficially for the community, in two months. For this assumption we have the authority of Mr. Appleton, (in his recent pamphlet on this subject,) which, as that of a most enlightened bank advocate, and long experienced bank president, must be respected by those who would count *our* opinions as nothing. The great difficulty of getting ready to resume is in fact a mere trifle. It is merely to draw in the excess of circulation; and, to do this, it would not even be necessary to compel the payment of existing debts to the banks faster than ought otherwise to be required. It would be enough that they should *make no more new debtors* to the banks, until the payments of the existing debts, (as coming in every discount day, according to the ordinary course of business,) had reduced their circulation and liabilities within their means of meeting them. Of course the banks should stop selling specie for the premium, (as they do now, in drafts on New York payable in specie,) and should even buy more specie, if necessary. The community would not suffer at all, or any thing worth naming in comparison to the suffering from the opposite cause. There would be only two minor classes who would suffer a loss of present illegitimate gains; and for their gain, all the present general evils of an irredeemable paper currency are endured. These are, first the banks, or the stockholding interest, which of course would lose the present large and unrighteous profits made by their violation of all legal and moral obligations—by their greatly expanded issues and loans, and by trading and practising indirect usury upon the depreciation, thus produced, of their own notes. And secondly, the speculators and traders on fictitious capital, who depend on bank loans and accommodations to carry on business, would necessarily have to contract their operations—and of many, perhaps, it might be found that in fact they *had nothing to trade upon*, except the credit thus furnished by the bank, through the irredeemable paper system. If the insolvency or bankruptcy of any such persons were to occur, it would not be *caused* by bank resumption, but simply thereby brought to light. But let the loss to these two classes (stock-holders and bank borrowers, and we may add stock-jobbers and speculators,) be what it may, we submit the question to the people, whether, to prevent these losses, incurred as they will be solely by the participation of the losing parties in the long continued abuses of banking, and aiding their injurious operation on

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* In addition to the sundry facts before published in the newspapers, and of which enough have been copied into our summaries of news, on which the above general statement was based, the following have reached us within a few days after the above article was written, and before it could go to press.

"The last London packet from New York took out more than $200,000 in specie."—[*Balt. Sun.*]

The last National Intelligencer has the following passage in the letter of its regular New York correspondent, who is a thorough *bankite*, and advocate for the paper system: "The rate of exchange is gradually becoming higher. As a necessary consequence, specie is shipped. The Havre packet, which sailed this morning, [Sept. 16,] took out $240,000." (According to the "Money Article" of the Herald, it was $250,000.)

Now, if the whole issue of the proper time to resume specie payments were to be made to turn on this one point alone, we ask was there ever a more gross deception in the pretence, or more gullibility in the belief, that the continued *delay of resumption*, which confessedly causes specie to be exported continually, will serve to make more easy the future resumption of specie payments by the banks!!!

the public interests, the *people* are willing to continue to bear all the evils they have long suffered and will still more suffer, from this iniquitous and fraudulent system? If so, indeed, then we have nothing to do but submit, in common with all others, to be thus oppressed through all future time. But, while there remains a hope for successful resistance to this tyranny of avarice, moral fraud, and legalized swindling, we will be among those who will struggle to throw off the yoke, even if the impending consequences of such emancipation were ten times as costly in a pecuniary point of view as they are asserted to be by the predictions of bank advocates, and apologists for banking frauds.

EXPERIMENT OF PLANTING CORN WITH ONE OR MORE STALKS AT A PLACE.

To the Editor of the Farmers' Register.

Louisa Co., Va. September 4, 1841.

* * * * *

While my pen is in hand I will give you the details of an experiment in planting corn which I made in 1839. It may be of some interest to your readers.

My object was to ascertain how the product of the crop is affected by the mode of planting: as, with only a single stalk in a hill, or with more. A piece of land of good quality, and pretty well manured, I laid off by stakes in straight rows or drills 5 feet apart. Thirty of these rows of equal length, were divided into three parcels of 10 rows each. One of these parcels, I planted with a single stalk in a hill, the hills being placed one and a half feet apart in the drill; one with two stalks in a hill, the hills three feet apart in the drill; and the other with three stalks in a hill, the hills four and a half feet apart in the drill. By this arrangement it will at once be perceived that each parcel, occupying exactly the same space of ground, (which was just a quarter of an acre,) had precisely the same number of stalks of corn on it—the only difference between them being in the mode of planting; viz., one with one stalk, one with two, and the other with three stalks in a hill. The distances between the hills were taken by measure; the whole lot was planted at the same time, with the same variety of corn, cultivated alike, and harvested alike, and the product of each parcel, carefully kept to itself, was as follows:

No. 1., one stalk in a hill, the hills one and a half feet apart, 14¼ bushels.

No. 2., two stalks in a hill, the hills three feet apart, 16½ bushels.

No. 3., three stalks in a hill, the hills four and a half feet apart, 14¼ bushels.

Thus it would appear, that on such land as I experimented on, corn is more productive with two stalks in a hill, than with either one stalk or with three; and that there is no difference in product between that with one stalk in a hill and that with three.

My lot of three-fourths of an acre produced 45 bushels, or at the rate of 60 bushels per acre; while the quarter of an acre which was planted with two stalks in a hill, produced 16½ bushels, or at the rate of 66 bushels to the acre, being a clear gain of 6 bushels to the acre, merely from the mode of planting—a most important and valuable gain truly. There were some stalks missing in each parcel, but I thought not more in one than in another; and though there may have been some shade of difference in the quality of the soil, or of the manure applied to it, I did not perceive any. I thought the experiment was (as it was intended to be) a very fair one. I was induced to make it from reading in the Register a very valuable article on the cultivation of corn, from the pen of Mr. William P. Taylor of Caroline. He advanced the opinion, as the result of his experience and observation, that corn produces more when planted with two stalks in a hill than with one. Knowing that his experience and intelligence entitled his opinions to great respect, and having myself observed that one corn-maker of my acquaintance, who always plants with two stalks in a hill, (to save hoe work, which it does to a considerable extent,) generally made better crops than his neighbors, I thought it would be well to test it by accurate experiment. The result tends to confirm Mr. Taylor's opinion. The corn which I planted was a variety of the twin-eared prolific corn, and the season was a good one. The common opinion in this part of the country is in favor of planting with a single stalk in a hill; and I know it is in general unsafe to trust to a single experiment, or to the opinions of a few, in opposition to the common opinion of the world, founded on general experience; but so few accurate experiments have been made on this subject, that I have not hesitated to rely on Mr. Taylor's opinion, confirmed by my own experiment and observation; and I now plant my corn with two stalks in a hill, and recommend it to others to do the same. It certainly saves labor in planting, and weeding with the hoe, and I think there is a gain in the product of the crop.

Should this meet the eye of any who have made experiments on the same subject, I hope they will give the results through the Register.

The wheat crop in this region gives scarcely half the usual product. Corn, which was backward and indifferent in the early part of the season, now promises about its usual return. Tobacco, though later in starting to grow off than usual, is now doing well, and, if it escapes an early frost, may make a fair crop. The oats never were worse.

JOHN Z. HOLLADAY.

SOIL PROPER FOR THE VINE.

From Hoare's Cultivation of the Vine.

One of the principal causes of grapes not ripening well on open walls in this country is the great depth of *mould* in which the roots of vines are suffered to run, which, enticing them to penetrate in search of food below the influence of the sun's rays, supplies them with too great a quantity of moisture; vegetation is thereby carried on till late in the summer, in consequence of which the ripening process does not commence till the declination of the sun becomes too rapid to afford a sufficiency of heat to perfect the fruit. To prevent this, the

subsoil should be composed of dry materials. It is almost impossible indeed to make a vine border of materials that shall be too dry or porous. It is not mere *earth* that the roots require to come in contact with, to induce growth and extension, but *air* also, which is as necessary to them as to the leaves and branches. The excrementitious matter discharged from the roots of a vine is very great, and if this be given out in a soil that is close and adhesive, and through which the action of the solar rays is feeble, the air in the neighbourhood of the roots quickly becomes deleterious, and a languid and diseased vegetation immediately follows. But if the roots grow in a soil composed of dry materials, mixed together in such a manner as to possess a series of cavities and interstices, into which the sun's rays can enter with freedom, and there exert their full power: the air in which the roots perform their functions becomes warm and purified, they absorb their food in a medium which dissipates their secretions, and a healthy and vigorous vegetation is the never-failing consequence. All borders, therefore, made expressly for the reception of vines, ought to be composed of a sufficient quantity of dry materials, such as *stones, brickbats broken moderately small, lumps of old mortar, broken pottery, oyster-shells, &c. Bones*, however, on account of their prolonged effect, are by far the most valuable manure that can be deposited in a vine border. They should be buried in the soil whole, and as fresh as possible. Every variety of size may be procured, from the smallest bone of a fowl to the largest bone of an ox. The small bones will decompose in a few months, but the largest will remain for twenty, thirty and even fifty years, before they are entirely decayed while the intermediate-sized ones, according to their respective kinds, will be continually decomposing in succession for a great number of years, yielding thereby a constant supply of nutriment of the most valuable description. It is worthy of remark also, that every bone, whether small or large, after it has been deposited in the soil a few weeks, will begin to yield, by the decomposition of the gluten on its surface, a steady supply of nutritious matter, and continue so to do until it be resolved into its constituent parts and form part of the soil itself.

FACTORY BATHS.

From the Penny Magazine.

In the autumn of last year I established some warm baths, which have been brought into very general use, and have contributed materially to the health, comfort, and cleanliness of the people. The bathing-room is a small building close behind the mill, about twenty-five feet by fifteen. The baths, to the number of seven, are ranged along the walls, and a screen about six feet high, with benches on each side of it, is fixed down the middle of the room. The cold water is supplied from a cistern above the engine-house, and the hot water from a large tub, which receives the waste steam from the dressing-room, and is kept constantly almost at boiling temperature. A pipe from each of these cisterns opens into every bath; so that they are ready for instant use. The men and women bathe on alternate days, and a bath-keeper for each attends for an hour and a half in the evening. This person has the entire care of the room, and is answerable for every thing that goes on in it. When any one wishes to bathe, he comes to the counting house for a ticket, for which he pays a penny, and without which he cannot be admitted to the bathing-room. Some families, however, subscribe a shilling a month, which entitles them to five baths weekly; and others hold a *general* subscriber's ticket, which always gives them admittance to the room. I think the number of baths taken weekly varies from about twenty-five to seventy or eighty. During the first four months (from November to February inclusive) the average was about seventy-five weekly. I pay the bath-keepers two shillings and sixpence and two shillings a-week; and I believe this amount has been more than covered by the receipts. The first cost of erecting the baths was about eighty pounds.

PORK RAISING—EXERCISE USEFUL FOR SWINE.

From the Maine Farmer.

Mr. Phinney's remarks and experiments (no guessing) prove that swine kept in ordinary growing condition only, for the first nine months, or half their life, have exceeded in weight fifty pounds those kept high and fat the whole time, though at nine months old the latter were the heaviest. They were all one litter. Three were kept so as to exercise and root in the compost heap, or in squealing condition, as some farmers would say, for nine months, while the other three were kept fat and in a close pen for the same time. They were all slaughtered in one day at 18 months old, having the last nine months been kept precisely alike. Mr. Phinney, like a man who reasons and thinks, attributes the increased weight mostly to exercise. The benefits of exercise are well known in all animals, man not excepted. If all were to bring up their children on rich food, without exercise, our race would soon become Lilliputians; and so with all other animals. This is worth knowing, as it saves much expense, and in swine 50 lbs. of pork into the bargain. It must also aid in making manure; if mud, thistles, bushes, &c., &c., are placed for those which are kept ordinarily to root over.

Pork cannot be afforded at 6 or 7 cents per pound by any one who does not raise roots, squashes, pumpkins, and who does not let his swine run out to pasture, or on a clover patch three or four months in summer, or does not mow clover grass for them and place it in their yard, or on the compost heap, &c. I suggest these ideas for those who may feel interested in the subject.

N. B.—Were I asked, what farmer could afford pork lowest, and make the raising of it a good business? I would answer, in a word, he who makes the most manure from his swine, and who raises the most roots, squashes, pumpkins, apples, &c., and who looks well to the breed.

FRONT YARDS—SHRUBBERY—FLOWERS.

From the Franklin Farmer.

While the farmers are vigorously preparing to engage in the important and busy operations of spring, they should not neglect those employments of the *taste* that contribute so much to the beauty, pleasure and comfort of a country residence. Don't suppose from the caption of this article, that we are going to advocate an inutile, unproductive expenditure of time and labor; for if you do, we shall address ourselves to your wives and daughters—God bless them. We hold it the duty of every good farmer to render his *home* as happy and agreeable as possible; to combine the solid comforts of life, with the elegant pleasures of taste. We do not urge the sacrifice of substantial enjoyments to those of the taste or fancy—we would secure both; and he who is most successful in obtaining the one, is most likely to secure the other. Let every farmer, therefore, appropriate a liberal allowance of ground for a front yard to his house. It should be expansive enough to permit the execution of a regular design, in laying out the lines for walks, groves, rows of trees, shrubbery and flowers. It should be handsomely graded, sloping downwards from the house, in front and on each hand. Set it in blue grass, and of course enclose it by a neat, substantial paling or fence, painted white. In the selection of the trees, shrubbery and flowers, consult the taste of your "better half;" and don't spare any expense she may require, in order to gratify her taste. If she even fancies exotics, send abroad for them, though we should like to see our native botany more appreciated; for, be assured, every tree, shrub or flower, will give you and your family a joy and gladness more exquisite than any derivable from the sordid enjoyments of wealth. A taste for trees, and plants, and flowers, is the love an enlightened mind and a tender heart pays to nature; it is a peculiar attribute of woman, exhibiting the gentleness and purity of her sex; and every husband should encourage it; for his wife and daughters will prove wiser, and happier, and better by its cultivation. Who does not venerate and love some tree, or rose, or honeysuckle, planted, it may be, by the hand of some absent or departed mother, or sister, or brother? and who would not protect them with a holy reverence, as mementoes of a hallowed love as well as contributors to the gratification of an elegant taste? The writer remembers well the vine planted by his mother's own hand, when he was a little child. Its tendrils now cling to the topmost branches of a tall tree in the front yard; and he never revisits the scene of his childhood, without gratifying some of the holiest emotions of his nature by sitting under its shelter and recalling the earliest and happiest associations of his life. And there too, clinging about the columns of the porch, is the coral honeysuckle, shading the evening window, with its rich and delicate clusters of flowers; and at every footstep along the border, are the many-hued flowers, planted by a sister. And there also, along the line of the enclosure, are the rows of peach, pear, plum, cherry, apple, quince and ornamental trees, planted by his own hand, when but a boy. They now, like the writer, who planted them, have grown to maturity. Every year they pay rich return of delicious fruit, or beautiful and fragrant foliage and flowers; and every returning summer, as he pays the accustomed visit to the homestead of his youth, he enjoys a rational pleasure in the mere sight of them, infinitely greater than the gratification of the most fastidious palate. It is a great joy, to go to each tree, and, as it were, renew an acquaintance begun in the earlier years of our youth, and rejoice in the full strength of manhood—'tis the very poetry of a gentle and gladsome and nature-loving heart. And these are modes of enjoyment which every one should provide for himself and for those who are to come after him.

We have deemed such an article as this necessary to many of our Kentucky farmers. There are too many of them who sacrifice to a supposed utility all the enjoyments of which we have spoken. We have known some plough almost up to the walls on all sides of the house, which seemed to have been taken from some other place, and set down in the midst of a corn field. Such a taste is extremely vulgar.

We have but two or three suggestions further on the subject, leaving to the taste of the farmer the plan of the improvement we desire all to adopt. The row of trees next the yard fence should be large forest trees, such as the black locust or elm. The passage from the front to the road should either be through a woodland pasture or a grass lawn, neither of which should ever be devoted to the plough. Be content with the pleasure and the pasturage afforded by such land—they are profits enough. The woodland pastures of Kentucky, are doubtless more beautiful than the classic groves of Arcadia. Where there is but a lawn in front of the house, the farmer should plant an avenue of trees. For this purpose, we recommend the elm; but the utilitarian will prefer the locust, a handsome ornamental tree, indeed, and producing a most valuable timber. But who is the Goth would think of felling the trees of an ornamental avenue for their *timber?*—none but one thrice-steeped in barbarism. The elm is the finest ornamental tree of our forest. Its venerable trunk, its graceful boughs, its early, rich and beautiful foliage, and its entire freedom from the least appearance of stiffness, should render it the classic favorite of the woods. It is surprising that it is not more prized as an ornamental tree.

We will add but one remark more, fearing our readers may deem the length of this article an encroachment upon more important topics. Never permit the suggestions of a momentary cupidity to induce you to graze your front yard. The grass may look luxurious and tempting, and it may seem "*a sin*" to lose it; but better to mow or shear your yard than to graze it. A cow or horse will, in one hour, destroy the growth of years. Nothing is more provoking, to the man of taste, than to see the trees he has planted, the vines and the flowers he has nurtured for years, destroyed as *fodder for beasts*. O, 'tis horribly vulgar.

BLUE WASH FOR WALLS.

Two pounds blue vitriol, 1 pint slack lime, small piece of glue. Dissolve the vitriol and glue

in boiling water, and wet your lime with the blue water. Have it the consistence of white-wash, and put it on in the same way.

A BRILLIANT STUCCO WHITE-WASH.

From the Genesee Farmer.

Many have probably often heard of the brilliant and lasting white-wash upon the east end of the President's house at Washington city. The following is the recipe for making it:

"Take clean lumps of well burnt lime, say five or six quarts, slack the same with hot water in a tub, covered, to keep in the steam, pass it in the fluid form through a fine sieve, add one fourth of a pound of whiting or burnt alum, pulverized—one pound of good sugar, three pints of rice flour made into a thin and well boiled paste, and one pound of clean glue, dissolved by first soaking it well, and then putting it into a small kettle, which should again be put into a larger one filled with water, and placed over a slow fire. Add five gallons of hot water, the whole mixture.

"This wash is applied, where particular neatness is required, with a painter's brush. It must be put on while warm, if upon the outside of the building—if within doors, cold. It will retain its brilliancy for many years. There is nothing of the kind that will compare with it. About one pint of this mixture will cover a square yard upon the outside of a house, if properly applied. If a larger quantity than five gallons is wanted the same proportions must be observed in preparing. Coloring matter may be added to give it any required shade."

NEW EDITION OF LIEBIG'S ORGANIC CHEMISTRY.

[The following letter from Prof. Webster, though not sent to us for publication, will best serve to announce what he wishes. We shall be gratified if he can be aided as he desires.—Ed. F. R.]

To the Editor of the Farmers' Register.

Cambridge, Mass., Sept. 3d, 1841.

I am greatly obliged to you for your politeness in forwarding the numbers of the Register and the Essay on Calcareous Manures. I have read them with great interest, and have been much struck by many of your remarks on Liebig's views.

The publisher has requested me to attend to the publication of a second edition immediately, as he has orders for many copies. I should prefer delaying, until I hear from Liebig, in reply to the communication I have made to him; but the call for the work is such, that the publisher will not wait. I expect however to receive matter in time for insertion in the appendix.

Any results of the application of Liebig's principles which you can furnish me with, will be received with thanks; my only object in causing the work to be published here, being to have it in the hands of those who will put the principle to practical test, and to aid in advancing our agriculture.

Should you see fit to insert a short notice that a second edition is in press, and that the communication of any results, from persons who have engaged in any experimental operations, are much desired by me, you will perhaps increase the usefulness of the work. They may be addressed to Mr. John Owen, University Book Store, Cambridge, Mass. I am, very respectfully, yours, &c. J. W. Webster.

CHARCOAL FOR DISEASED LUNGS IN HOGS.

From the Franklin Farmer.

Mr. Editor:—As the rearing and fattening of hogs has become a business of great importance to the west, and especially to our own corn growing state; and as new and terrible diseases have made their appearance within the last few years, among that class of our domestic animals, I, as a common sufferer with my brother farmers, have been trying to ascertain the cause of, and remedy for, the one which I have suffered the most by, and which I shall call your attention more particularly to. It is admitted I believe by pathologists, that diseases may and do change their type in the same latitude, and become more and more malignant as the population becomes more dense and the country becomes older; thus our own intermittent has degenerated into the more deadly typhous fever; thus that which we once called quinsy or swelling of the throat in swine, has now assumed a more malignant type, and requires a different treatment; the cause is the same, but the effect is not always instantaneous or accompanied by the same symptoms or results. I think it may be safely assumed that most of the diseases, if not all, that hogs are liable to, are produced by sudden transitions from heat to cold; and as they do not, like most other animals, perspire through the pores of the skin over the whole surface of the body, but through small orifices on the legs and throat, which are constantly liable to obstruction, and especially in the winter season, when the animals in large numbers bed together, producing great heat and free perspiration for a short time, but from the restiveness of their nature they are often changing the position first assumed, all tending to clot the mediums of respiration, and thus lay the foundation of disease and death, by alternating between heat and cold through the winter. Ordinarily the weak of the herd are the first to die. This may be chargeable to their inability to change positions, subjecting them to the crushing weight of the whole number in the bed; or to their long subjection to the great heat engendered by the common mass, until they are called to partake of the morning food. This, as we have stated, formerly produced enlargement of the glands of the animal's neck, which often ended in inflammation and death. Now, the same cause produces a very different effect, and although it is still strangulation, yet the inflammation falls with its whole weight upon the lungs, and if both tubes of that organ are affected, death instantly ensues; if only one, the animal may live a long time, but never recovers unless the remedy that I shall pre-

sently suggest, or one equally potent, be applied. The symptoms where the attack is violent, are a seeming sense of suffocation, great indisposition to move, a deep crimson color, approaching to purple, all over the body, and if forced to move only a few paces, the animal will pant as if worried by dogs in hot weather. If the attack is less violent they will take more exercise with seemingly less pain, will throb in the flanks in much the same way that a horse will when exhausted by fatigue and hard usage, are generally inattentive to their company, are inclined to eat earth rather than their accustomed food; such generally live a long time, but never recover. I now proceed to point out the way to prevent the disease, and to cure it if taken in time: Do not suffer your hogs to herd together in large lots in cold weather; never suffer them to sleep in hollow trees; if you have sheds for them to sleep under let them be set so low that they cannot in great numbers heap together; in dry hard-freezing weather let them have some succulent food, such as apples, potatoes or turnips, but especially let them have plenty of salt and charcoal; this last is a cure for the disease above described, if administered before they entirely refuse to eat. It is known to almost every one, that charcoal is a powerful antiseptic and absorbent, and that hogs will search for and eat it with eagerness, and especially in banks of leached ashes, and so they will unassociated with ashes, if at first you will break it up into small lumps and pour a little salt and water over it. I have tried the various means in common use, such as tar, antimony, sulphur, &c., and never had one to recover its health until I tried the charcoal, and I have every confidence that it will succeed with others as it has with me, and if it does, I shall be well paid for this communication, feeling as I do, that no man ought to live for himself alone. W.

GROWTH OF THE VINE IN ENGLAND.

From Hoare's Cultivation of the Vine.

It is not too much to assert that the surface of the walls of every cottage of a medium size that is applicable to the training of vines is capable of producing annually as many grapes as would be worth half the amount of its rental. Every square foot of the surface of a wall may, in a short space of time, be covered with bearing wood, sufficient to produce, on an average, a pound weight of grapes, and I have frequently grown double that quantity on a similar extent of surface. Nor must it be supposed that a single vine requires for its training a large portion of walling. That very common notion has, no doubt, arisen from the universally defective method of pruning and managing; whereby the wood is suffered, and indeed encouraged, to extend itself most disproportionately beyond the capability of its fruit-bearing powers. I scarcely ever allot more than from forty to fifty square feet of surface for one vine; and, unless the soil and situation be very superior indeed, a single vine will require a space of time, not less than twenty years at least, before it will possess a sufficient degree of strength to enable it to mature annually a greater quantity of grapes than can be trained on the last-mentioned extent of surface. On a wall only twenty-five inches in height, and eighteen feet in length, I have for years trained a vine that is a perfect picture of fertility, the whole surface of the wall being every year literally covered with fine grapes close down to the very stem of the plant. It will thus be seen that small detached portions and vacant spaces of the surface of walls, which in innumerable instances are deemed of no value, and are therefore neglected, may be turned to a most beneficial account.

WHEAT AND PEAS, ALTERNATELY.

From the Franklin Farmer.

Professor Eaton states, in his Agricultural Survey of Rensselaer County, that on the Knickerbacker estate in Schaghticoke, the soil of which may be considered as the standard of excellence, containing 15 per cent. of animal and vegetable matter, and a large proportion of carbonate of lime, the following simple system of rotation is pursued:

The rotation method which has always been adopted by this family, (they have occupied it one hundred and twenty years, and five generations have been born upon it,) has been in the following simple order. Certain fields have been alternately devoted to wheat and peas. Those fields are sowed to peas in April. Immediately after the peas are harvested, it is ploughed three times, and sowed, from the 10th to the 20th of September, to wheat. After the wheat harvest it is pastured until winter; but no grass or clover seed is ever sown upon it, as these grow up spontaneously in great abundance. Sometimes oats and flax are substituted for peas. Thus a crop is harvested on each wheat field every other year,—one year wheat, the other peas, oats, or flax. Though no manure is ever applied to this land, it has yielded from twenty-five to thirty bushels of wheat per acre every other year, for ages past.

Certain other fields are devoted to Indian corn, potatoes, &c. In the culture of these there has been nearly the same uniformity. 1st. Corn and potatoes. 2d. Spring-sown grain. 3d. Wheat. Thus corn returns every fourth year.

The whole of Scaghticoke flats, consisting of almost two thousand acres, is very similar in quality, and cultivated in a similar manner. It is wholly river alluvion, in which the Hosick and the Tomhanick unite their waters.

THE EIDER-DUCK IN ICELAND.

From the Dillon's Winter in Iceland and Lapland.

The whole of the hill to the west of the house was strewn with nests of ducks. So much do these interesting birds feel their security in Vidoe, that five of them had chosen as their location the ground under a narrow bench that runs along the windows of the house; and so perfectly fearless were they, that, without moving away, they would peck at the hand that disturbed them. The rising ground is particularly favorable for the birds to build on, being covered with hollows and inequalities, that serve to protect them from

the weather, and only require the addition of down to convert them into nests. The drakes are easily known by their white and black plumage ; but the dark hue of the females makes it difficult to distinguish them from the holes in which they sit. Owing to their lying close, I have frequently trodden on them, without their warning me of their presence till the mischief was done. The drakes, though by no means wild, will not allow themselves to be handled so freely as the ducks, and mostly keep together on the top of the hill. As soon as a nest is completed, it is usual to remove the greater part of the down, while the bird is away feeding ; and this operation is repeated a second, and occasionally a third time. On her return, the bird makes up the deficiency thus created by stripping her own breast ; and, when her stock is exhausted, she calls on her mate to add his portion, which will bear no comparison with the sacrifice she has made. The same sort of spoliation is practised with regard to the eggs, care being taken that three or four are left ; for should the bird on her return find the nest empty, she will desert it, and not breed again the same season. About six, considerably larger than those of tame ducks, and of a light green color, are found in each nest. Their flavor is very inferior to that of hens' eggs, but they are not so strong as to prevent their being made into omelettes. The average quantity of down obtained from three nests is half a pound, so mixed with grass and foreign matter, that forty pounds in that state are reduced to fifteen, after it has been thoroughly cleaned. Vidoe and Engoe together produce, I believe, about three hundred pounds weight yearly ; which would, if the above calculation is correct, make the number of ducks that come to these two places fall not far short of ten thousand every year. The number, however, that breed in Faxefiord is small compared to those that bend their course to Breidefiord. The innumerable little islands that fill that bay afford ample shelter and security to eider-ducks, who seem to avoid nothing so much as any place accessible to foxes. These cunning animals are particularly fond of their eggs ; but though we will give them all credit for ingenuity in getting at them, we can hardly be expected to put much faith in the story told about them by the Danish travellers, Olavson and Paulson. When, say they, the Icelandic foxes have detected any crows' eggs in an inaccessible place, they take one another's tails in their mouths, and form a string of sufficient length to reach the nest, and let one end of it over the rock. They have, however, forgotten to tell us how the eggs are passed up by these craftiest of Reynards. The separation of the down from the grosser feathers and straws occupies the women during winter. It is then thoroughly divested of particles too minute for the hand to remove, by being heated in pans, and winnowed like wheat. Should it become matted and dead, it is again subjected to a brisk heat, which restores its original elasticity, and increases its bulk. As in the case of ostriches, the down taken after death is inferior to that which the living duck tears from its breast, which prevents their destruction through wantonness. They are besides protected by the law, which punishes the shooting of them by a pecuniary penalty and the forfeiture of the weapon used. Nor are guns allowed to be fired in the neighborhood during their sojourn ; and even the corvette that brought the prince abstained in the spring from saluting him.

GUANO.

[After making large allowance in the following article for the exaggeration with which most new agricultural improvements are usually described, it is still a remarkable and valuable fact that animal manure has been and can be profitably imported into England from so great a distance as the eastern part of the Pacific Ocean.—ED. F. R.]

From the London Farmers' Magazine.

The importation of this substance, by Messrs. W. J. Myers and Co. of Liverpool, is mainly, if not entirely, owing to the spirit of agricultural improvement which has of late been diffused through the country. A retrospection of the state of agriculture in Great Britain shows—that while arts and manufactures have made daily, indeed, hourly strides to perfection, the far more important interest, the production of food, has received nothing but neglect ; and in truth, the tillage of the soil has, until necessity compelled a change, been considered as an employment beneath the notice of science, and as such, been conducted by those from whom knowledge could not be expected nor new ideas obtained.

Within the last few years, however, the increasing population and their improved condition have called imperatively for a larger supply of food, and inquiry once commenced, the magnitude of the subject became apparent to all.

Chemistry, of which every agriculturist is the unconscious professor, so intimately connected with the progress of vegetable life, that the simplest duty of the farmer is dependent on its laws ; chemistry is at length recognized as the readiest key to knowledge, and to carry out the advantages offered by its mighty aid, associations of all classes in the country have been formed, and assistance given on a scale to which no other empire in the world can afford a parallel.

The object I have now in view is to introduce to the agricultural world of England, a manure, which in another climate has been of long use, and most beneficial effect.

Guano (the name it bears) is the deposite of sea-birds on islands in the Pacific Ocean, and is found there in large quantities, being the accumulation of ages past.

Its component parts are in fact a collection of valuable manures, and the effects resulting from its use, though only what must follow the nature of its composition, are beyond all other manures whatever extraordinary.

It would far exceed the limits of this letter to detail all the experiments which have been made, or to mention all the proofs that have been recorded of its worth. It has been tried upon sixty different farms, and on every different crop ; and I may say, that, not only in no instance has failure attended its application, but in every case, its produce has astonished the farmer who has tried it.

A gentleman of the name of Smith, farming

largely at Gunton Park, in Norfolk, was induced to try it on his land. He applied four bushels, about 200 lbs. weight, to a statute acre; and on the same field alongside on an equal quantity of land, applied 15 bushels of bone dust. Both were drilled into ground with the seed wheat; the guano gave 6 qrs., 2 bush., 1½ peck; the bone dust, 4½ qrs. of wheat.

I might multiply examples, but the diffusion of knowledge on these subjects is now so general, and so many able lectures are given by which the virtues of this substance *must* be noticed and made known, that I prefer leaving the promulgation in abler hands than mine; and if all who come forward to aid the advancement of agricultural improvement, bring to the task the practical and scientific skill of Professor Johnston, of Durham, with the simplicity of composition which makes the study of his lectures so pleasing, the attainment of a perfect system of farming is nearer than might be reasonably looked for or supposed.

The system of its use is easily explained and adopted. It is in appearance a dry powder, and its weight is about 52 lbs. to the bushel. Four bushels mixed with one bushel of powdered (wood) charcoal, form the supply for one acre. The charcoal has the power of holding ammonia in its pores, and it has been found that the mixing and applying it with guano, has rendered the second year's crop almost as abundant as the first.

I would recommend it to be applied by different means to the earth. By drill with the seed, as shown in Mr. Smith's experiment, and from which such a favorable return was obtained; and also broadcast over the land, being afterwards lightly ploughed or harrowed in.

It should be remembered, that its diffusion amongst the earth round the roots of plants, is the object to be attained. Its composition, I repeat, is of that nature which must, under any circumstances, do good; and the trials of different modes of using it, will soon establish the one to be preferred.

For wheat, the experiment of Mr. Smith is a type of its action. On clover, turnips, barley, oats, and hops especially, it is, if any thing, more evident still; while to form a judgment from the past, the book lately published by the German chemist, Liebig, and which contains a beautiful exposition of the principles of vegetable existence, says:—"*A small quantity of guano will, on the barren shores of Peru, produce an abundant crop of maize.*" On those barren shores, it has been used from time immemorial.

The day is near at hand, when if "*sufficient manure for an acre be not carried in a waistcoat pocket,*" which was the prophecy of a clever writer some years back, at least its concentration will be better understood, and the application of particular food to particular plants (which when correctly understood and practised, is the foundation of successful farming) will soon be appreciated as reasonable in theory, and found on trial to be correct in practice.

And for the prosecution of improvement, how advantageous is the position of the farmer. Pestilence may sweep over the land, wars may ravage it, fire may consume, but from each calamity of man, as from every blessing he enjoys, there spring new causes to excite his gratitude; and in the destruction of the vilest herb at our feet, as in the lingering decay of objects the most beautiful, and which we mourn to witness, we shall find but the change of condition necessary to return their nourishment to the earth, that, in *its turn*, it may bring forth fresh food for the living creatures that are upon it; and from the enterprising spirit of the British merchant, and the knowledge which makes it available as well to his fellow countryman as to himself, the farmer will obtain all the assistance he can require. I might cite many proofs, but that the guano, which is more immediately connected with these observations, affords the strongest evidence of the fact. When we consider that the great body of the English agriculturists were ignorant even of its existence—that it was the opening of a new trade—under circumstances of at least some doubt and risk, the greatest credit is due to the Messrs. Myers, by whose exertions, and through whose instrumentality, this new and valuable auxiliary has been obtained. From the union thus effected between commerce and agriculture, there cannot fail to spring the happiest results, and at this particular juncture more especially, such partnership of advantage will be of use.

It is a circumstance most gratifying to me, that being the first to introduce the nitrate of soda among the farmers of England, the guano should likewise pass through my hands. I believe it will be found of great benefit, and it will lead those who use it to reflect upon the condition and composition of matter, when they will find that there is scarcely a substance which the eye can rest on that is not available to their use. That such inquiry may arise should be the earnest wish of all who would maintain the happiness, and preserve the high standing of their country.

A. MACDONALD.

3, *St. Mildred's Court, July* 30.

Analysis of guano—100 parts.

Bone earth - - - -	30½
Sulphates and muriates - -	3
Lithic acid - - - -	15
Ammonia - - - -	15
Other organic matter - -	36½
	100.0

OBJECTIONS TO THE OAT AND TOBACCO ROTATION.

To the Editor of the Farmers' Register.

September 11, 1841.

A communication in the May number of your journal, over the initials H. M., in which I recognize an old and esteemed friend, recommends a system of tobacco after oats under a two-field rotation. Taking this, together with a former essay from the same excellent pen, I perceive that H. M.'s opinions are based upon the practice of one of the most intelligent and successful agriculturists in Virginia, Wm. Old, esq. But with this accumulated weight of just claim to high and indisputable pretension opposed to me, I must nevertheless be permitted to dissent to the system.

H. M. tells you, as I understand him, that in entering on this course, it is important to the judicious application of labor in the tobacco crop

you should first make your lots rich, by manure, of course. They are to be then *kept up*, after tobacco, indeed improved, by oats. If a certain amount of tobacco *must* be made annually, and you are limited by invincible circumstances to 2 lots, I admit the propriety of the practice: but if this is not the case, and there is room for three, why give an oats lay the preference over a heavy one of clover, which will rarely fail to succeed tobacco if sown in February; and I consider that clover, on account of its early protection to land from sun and evaporation, as well as its fertilizing properties, has no equal as a lay. Oats, maturing rapidly, with an exhausting crop of seed, and drying up at once, can not be so considered; and if turned under at maturity, as they must be to produce the most fertilizing effect, a naked fallow is exposed to the injurious influence of the sun at the hottest season of summer. Again, the rotation is too short to allow of an effort of nature in the reformation of soil. But the crowning objection with me to the system is, that you give up a large portion of the profits of your labor in preparing for and cultivating this expensive crop, in losing the best preparation known for wheat and clover. Why not then, friend H——h, *stretch* your rotation to three lots, even if they are a little *rolling*, (which I agree is objectionable,) clear an additional one, or buy of a neighbor? or, if these are inadmissible, divide by three instead of two, and bring yourself to the abjured and scouted system of three fields—tobacco, wheat, clover?

A. M. H.

ON MAKING SUGAR FROM INDIAN CORN STALKS.

To Dr. J. W. Thomson, President of the Agricultural Society of New Castle County.

Wilmington, 2d mo. 25, 1841.

Having been requested to furnish some account of the process for manufacturing sugar from corn, I cheerfully comply in giving all the information on the subject so far as I am at present acquainted with it. The introduction of every new manufacture must necessarily be a work of time; errors and difficulties continually obstruct our course, even where we have all the advantages of experience to direct it. The making of sugar from beets in the large way commenced in France about 30 years ago; yet not more than one-third of this period his elapsed since the business has become important from its extent and profit. These remarks are introduced as some apology for the imperfect state of the communication I have now to offer. Scarcely one year has passed since the first idea was suggested in relation to this peculiar plan for making sugar; and there has not been sufficient time for those exact experiments necessary to satisfy the careful calculator. In one case I obtained from a small piece of ground at the rate of 100 pounds of sugar per acre; but other experiments, made since, have conclusively shown, that had a different mode of planting been adopted the product would have been increased ten fold. The manner of raising the corn and making the sugar is as follows:

The corn is planted in rows 2½ feet apart, and the stalks are left to stand in the row 3 inches one from another, it is then cultivated in the usual manner. Some time in August or as soon as the stalk shows a disposition to form grain the ears must be taken off, this operation must be carefully attended to, as upon *it* entirely depends success. After this there is nothing more to do until the crop is ready to be taken up, which will generally happen in September, the stalks are then cut up at the root, stript of their leaves, and taken to the mill, where the juice is pressed out between iron rollers, in the same way usually employed with the sugar cane. Lime water about the consistency of thin cream is then mixed with the juice, one spoonful to the gallon, it is left to settle one hour, and then poured into boilers which are covered until the liquid approaches nearly to the boiling point, when the scum must be taken off. It is then boiled down as rapidly as possible, taking off the scum as it rises. As the juice approaches the state of syrup it is necessary to slacken the fire to avoid burning. The boiling is generally completed when 6 quarts are reduced to one, it is then poured into coolers or moulds and set aside to crystallize. When this process is gone through the sugar is to be separated from the molasses; and the whole operation is finished. The process here detailed gives the quality of sugar you see in the samples. If required it can be afterwards refined as other sugar. The use of animal charcoal and the employment of steam in the process of evaporation, as is common in the manufacture of beet sugar, would, I am confident, produce white sugar at one operation.

From what is known on the subject, I fully believe that an acre of good ground treated as above described will yield at least 1000 pounds of sugar —probably more. The value of the fodder taken from the stalks and of stalks themselves after passing through the mill, will be more than an equivalent for the whole expense of cultivation and keeping the ground up. The fodder produced in this way is much superior to that usually made, from its containing a greater quantity of saccharine matter.

The project for introducing the manufacture of beet sugar into the United States is one which has received much public as well as private attention. Government and people have united in their efforts and worked zealously to bring it about, but apparently without the least success. How is this? must we admit that we are inferior to the French in any thing whatever? this will not be allowed. There is another supposition which if correct will account for our failure: perhaps their beets are better than ours. French writers tell us of obtaining 4, 5, and even 6 per cent. of sugar from the roots, but these results are 4, 5, and even 6 times better than any which I have been able to obtain. In short, the whole business of making sugar from corn contrasts so favorably with the manufacture from beets, that I cannot but think it will obtain the preference wherever the climate will bring the former plant to perfection. Some of the differences may be enumerated as follows: 1st, the corn is clean and agreeable to work with, while the beet is not. 2d, the machinery for extracting the juice from beets is not only more costly, but is more liable to get out of repair. 3d, the beet juice contains a much greater proportion of foreign and injurious

matter, decomposition commences almost immediately after it is pressed out, and if allowed to go on to any extent will entirely defeat the making of sugar. 4th, the preparation of saccharine matter contained in equal quantities of corn and beet juice is as 3 to 1 in favor of the former, therefore the same difference will be found in the amount of fuel necessary in evaporation. 5th, beet sugar when obtained is inferior in quality and loses a larger per cent. in refining. 6th, corn is a native of our country, perfectly suited to the climate, a true American, and is in fact the finest plant in the world; the author of "Arator" (Col. Taylor of Virginia) used to call it our "meat, meal and manure." We now add sugar to the list of its valuable productions.

We only need a full developement of the resources of our own country to render us perfectly independent of every other. Respectfully, yours,

WM. WEBB.

From the Southern Agriculturist.

LIST OF THE AGRICULTURAL SOCIETIES OF SOUTH-CAROLINA.

Edingsville, June 15th, 1841.

Dear sir:—I believe the following to be a correct list of the Agricultural Societies of South Carolina, with the names of their Presidents:—

1. State Agricultural Society of S. C.; Whitmarsh B. Seabrook, President.
2. St. John's, Colleton, Agricultural Society; William G. Baynard, President.
3. Beauford Agricultural Society; William Elliott, President.
4. Agricultural Society of South Carolina; ———, * President.
5. Agricultural Society of Barnwell; Hon. Angus Patterson, President.
6. Agricultural and Police Association of St. Andrew's; (name of the President unknown.)
7. Agricultural Society of Sumter; Hon. John P. Richardson, President.
8. Agricultural Society of Pendleton; Edward Harleston, President.
9. Monticello Planters' Society, Fairfield; Hon. William Harper, President.
10. Agricultural Society of St. Helena; Jos. J. Pope, President.
11. Cambridge (Abbeville) Agricultural Society; Gen. Gillman, President.
12. Fairfield Agricultural and Horticultural Society; Osmund Woodward, President.
13. Wateree (Kershaw) Agricultural Society; Colonel James Chesnut, President.
14. Agricultural Society of Abbeville; George McDuffie, President.
15. Fishing Creek (Chester) Agricultural Society; Alexander Pagan; President.
16. Agricultural Society of St. Luke's; Dr. Jeremiah Fickling, President.
17. Greenville Agricultural Society; H. G. Johnston, President.

The last seven societies have been formed within a few months. Respectfully, yours,

WHITMARSH B. SEABROOK.

* Lately deceased.

RENEWING OLD HANDSAWS.

From the Franklin Farmer.

I am in possession of an improvement which, if you think worth communicating to the mechanics and farmers, is at your service. In the year 1813, in Harrison county, Ky., I had a very fine handsaw, which some of my apprentices rendered unfit for use. She had what is termed by mechanics a spring or broken back, or joint in her, and was thrown by. I tried several experiments to remove the spring and at last fell on the following plan:—I took a blacksmith's hand-hammer with a smooth face, and laid the saw on a smooth anvil, and hammered it lengthwise where the spring or joint seemed to be. I hammered it in the centre of the width, which removed the joint, and she was straight and stiff as ever, and was no more liable to have a spring or joint than any new saw, and performed as well as usual. If the hammer and anvil are smooth, no one will ever observe that it has been done. I have straightened a great number of useless saws thus and made them good as new, and have communicated this method of doing it, to many of my brother mechanics in Kentucky and other states. And now, as a mechanic and farmer, have thought for several years of having this information published to the world, for there are thousands of handsaws thrown aside as useless, for want of a knowledge how to restore them to usefulness.

J. H. WENTWORTH,
Millwright of Kentucky.

A THIBETAN YAK.

From the London Farmers' Magazine.

The Thibetan yak brought to Calcutta by Mr. Huffnagle is one of the most curious animals that we have ever seen. It is at present on the premises of Mr. Adam F. Smith, and the proprietor courteously permits those who are fanciers of such objects to inspect this tenant of the Himalayahs. It seems a connecting link between three very different zoological genera. It has the head of an ox, the body of a goat, and the tail of a horse. Its osteology differs from that of the ox, having one more rib. The cold climate of which it is a native, its resting place being among the snow, renders Calcutta particularly trying to this animal. It is a mere object of curiosity, but on the same premises Mr. Huffnagle has four Lepcha cows, from Darjeling which we consider likely to improve our breed of low-land cattle far more permanently and effectively than any importation that has yet been made. A bull of the same stock would be a still more valuable gift to the vicinity. These cows have the slightest possible rudiment of a hump, and the ears are rather large, thin, and pendulous, as in the Nagore breed; otherwise in frame, in fineness of head, lightness of bone, and superiority of udder, they approach closely to some of our best English breeds. To look at the black cows a casual observer would conclude that they were of the best kind of the Welsh breed: whilst the one which is brindled white and brown, looks much like a Devonshire. They are altogether a most promising source from whence to derive improvement to our Bengalee cow and ox; and the

remark naturally arises to the mind of every one who inspects this really very superior breed, how has it arisen that these animals have until now remained unknown within a journey of seven or eight days from Calcutta? The only answer is—most people go through life with their eyes shut. We hope Mr. Huffnagle will fully carry out his intention of breeding from these cows not only by a Nagore but by an English bull, and our desire is still greater, that a Lepcha bull should be brought to the presidency. We saw the cows during the hottest period of the day, and, though in not the best sheltered of sheds, they did not seem to suffer from the heat; whilst the Yak, though in a much cooler place was panting extremely.—*Calcutta Courier, May* 22.

A day or two since we noticed the yak, or kashgow, brought to Calcutta by Mr. Huffnagle, and which may be seen on the premises of Mr. Adam F. Smith. At that time we had been unable to meet with any notice of its habits, but since then we have found the following highly interesting particulars in a work just published—"Lieutenant Wood's Journey to the Source of the Oxus."

"The yak is to the inhabitants of Thibet and Pamet, what the rein-deer is to the Laplander in northern Europe. Where a man can walk, a kashgow may be ridden. Like the elephant, he possesses a wonderful knowledge of what will bear his weight. If travellers are at fault, one of these animals is driven before them, and it is said that he avoids the hidden depths and chasms with admirable sagacity. His footing is sure. Should a fall of snow close a mountain pass to man and horse, a score of yaks driven ahead answer the purpose of pioneers, and make, as my informant expresses it, '*a king's highway.*' In this case, however, the snow must have recently fallen, for when once its surface is frozen and its depth considerable, no animal can force its way through it. Other cattle require the provident care of man to subsist them through the winter. The most hardy sheep would fare but badly without its human protection, but the kashgow is left entirely to itself. He frequents the mountain slopes and their level summits. Wherever the mercury does not rise above zero, is a climate for the yak. If the snow on the elevated flats lies too deep for him to crop the herbage, he rolls himself down the slopes and eats his way up again. When arrived at the top he performs a second summerset, and completes his meal as he displaces another grove of snow in his second ascent. The heat of summer sends the animal to what is termed the old ice, that is, to the regions of eternal snow, the calf being retained below as a pledge for the mother's return, in which she never fails. In the summer, the women, like the pastoral inhabitants of the Alps, encamp in the higher valleys, which are interspersed among the snowy mountains, and devote their whole time to the dairy. The men remain on the plain, and attend to the agricultural part of the establishment, but occasionally visit the upper stations, and all speak in rapture of this summer wandering. The kashgows are gregarious, and set the wolves, which here abound, at defiance. Their hair is clipped once a year in the spring. The tail is the well known chowry of Hindustan, but in this country its strong, wiry, and pliant hair is made into ropes, which, for strength, do not yield to those manufactured from hemp. The hair of the body is woven into mats, and also in a strong fabric, which makes excellent riding trousers. The milk of the yak is richer than that of the common cow, though the quantity it yields be less."

ON BRAN AS MANURE.

From the London Farmers' Magazine.

To the Editor of the Mark-Lane Express.—In confirmation of a letter that appeared in your paper on July 19, respecting the analysis and use of bran as a manure, I beg to state the following facts:—In 1839, some bran had been thrown on a meadow carelessly and inconsiderately, and wherever so thrown, the marked improvement in the cut of the grass was so great as to draw attention to the fact; indeed, the benefit was greater than I ever saw from any other manure, when applied in such quantities, and at a cost that would be likely to leave a return for the outlay. This induced my giving it more attention in 1840, when I applied one-third of a ton to an acre, at a cost, at the time, of 37*s.*; the return was an increase of half a ton of hay to an acre over the ground not so manured, equal last year in value to 3*l.*, and the after-math was doubled, which I consider was worth 10*s.* per acre to me, and to all persons short of feed (which was generally the case in that year) it would have proved of still greater value. Thus the account stands:—

Cost of bran -	£1 17	Increased value of hay - -	£3 00
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On the whole, it appeared so beneficial and remunerating, that I have this year drilled some with my turnips; the soil is a sandy loam; the quantity used is a quarter of a ton per acre, at present worth 1*l.* 2*s.* 6*d.*, being at the rate of 4*l.* 10*s.* per ton, whilst other portions of the field have been dressed with yard manure. Unto the present time, I am not able to detect the slightest difference; the portion where the bran is used being quite equal to the dunged ground; but when the crop is matured, and in its greatest perfection, I will not fail of making a further report.

In applying the bran, I have damped it to prevent its blowing away, or else have chosen a damp day without wind; but since the letter above alluded to appeared in your paper, I have heard of its being drilled with the turnip seed quite dry, and that it has run remarkably well.

On the whole, I feel pretty certain that the moderate cost, the great facility of many farmers obtaining it from his neighboring miller, its easy application, and its good result, will soon induce it to be reckoned among the most economical, and therefore the most beneficial of the manures that has lately called for the consideration of the agriculturist.

J. Welch.

Steep, near Petersfield, Aug. 1841.

FECUNDITY OF RATS.

From Fothergill's Philosophy of Natural History.

The principle of increase is much more powerful, active and effective in the common gray rat, (*mus decumanus, L.*) than in any other animal of equal size.

This destructive quadruped is continually under the *furor* of animal love. The female carries her young for one month only; and she seldom or never produces a less number than *twelve*, but sometimes as many as *eighteen* at a litter: the medium number may be taken for an average; and the period of gestation, though of so short continuance, is confined to no particular season of the year. The embraces of the male are admitted immediately after the birth of the vindictive progeny; and it is a fact which I have ascertained beyond any doubt, that the female suckles her young ones almost to the very moment when another litter is dropping into the world as their successors.

A celebrated Yorkshire rat-catcher, whom I have occasionally employed, one day detected and killed a large female rat that was in the act of suckling *twelve* young ones, which had attained a very considerable growth; nevertheless, upon opening her swollen body he found *thirteen* quick young, that were within a few days of their birth! Supposing, therefore, that the rat produces ten litters in the course of a year, and that no check on their increase should operate destructively for the space or four years, a number not far short of *three millions* might be produced from a single pair in that time!

Now, the consequence of such an active and productive principle of increase, if suffered continually to operate without check, would soon be fatally obvious. But the same Almighty Being who perceived a necessity for their existence, has also restricted their numbers within proper bounds, by creating to them many powerful enemies; and still more effectually by establishing a propensity in themselves, the gratification of which has continually the effect of lessening their numbers, even more than any of their foreign enemies. The male rat has an insatiable thirst for the blood of his own offspring. The female, being aware of this passion, hides her young in such secret places as she supposes likely to escape notice or discovery, till her progeny are old enough to venture forth and stand upon their own energies; but, notwithstanding this precaution, the male rat frequently discovers them, and destroys as many as he can; nor is the defence of the mother any very effectual protection, since she herself sometimes falls a victim to her temerity and her maternal tenderness.

Besides this propensity to the destruction of their own offspring, when other food fails them, rats hunt down and prey upon each other, with the most ferocious and desperate avidity; insomuch, that it not unfrequently happens, in a colony of these destructive animals, that a single male, of more than ordinary powers, after having overcome and devoured all competitors, with the exception of a few females, reigns the sole, bloody, and much dreaded tyrant over a considerable territory, dwelling by himself in some solitary hole, and never appearing abroad without spreading terror and dismay even amongst the females whose embraces he seeks.

In this relentless and bloody character may be found one of the most powerful and positive checks which operate to the depression of this species within proper bounds,—a character which attaches in greater or less degree, to the whole *mus* genus, and in which we may readily perceive the cause of the extirpation of the old *black rats* of England, (*mus rattus, L.*) for the large gray rats having superior bodily powers, united to the same carnivorous propensities, would easily conquer and destroy their black opponents wherever they could be found, and wherever they met to dispute the title of possession or sovereignty.

MANAGEMENT AND DISEASES OF HOGS.

To Chilton Allan, President of the Kentucky State Agricultural Society.

From the Franklin Farmer (1838.)

I have seen, in a late number of the Franklin Farmer, your circular address, calling upon the friends of improvement for essays upon a number of important subjects relating to the agricultural interest and pursuits of the state. Approving heartily the noble objects of the State Society, I read your address with great satisfaction; and I cannot but believe, that the action of the society will bring about the most gratifying results in improving the science of agriculture and hence the condition of the husbandman; for I cannot doubt, that every one who desires improvement himself and who would derive useful information from others, will hold himself bound to contribute something to the general stock of knowledge. There are few intelligent farmers who do not know something unknown to others, and it is by an interchange of sentiment and opinion as well as of experience and practice, that the farmers of the country will be able to see and reject the errors of their husbandry and adopt those modes instead, which lead to improvement and success. In this view, I offer an humble tribute, which at least has the merit of a well meant design of benefiting others in some respects.

The commencement of our prosperity may be dated from the period when our agriculturists turned their attention to the raising of stock for export; and as the consumption and demand have increased in a ratio with the increase of population and wants of the people of the United States, the business has become a source of wealth to Kentucky. And no where has the improvement of stock been so great and so general, nor more zeal and perseverance manifested to improve the breeds of horses, asses, cattle, sheep and hogs. In enumerating these descriptions of stock, the last is not the least important in bringing wealth to the state, and should be looked to with a fostering care and attention.

Under this belief, I humbly submit to the public through you, the following observations on the management of hogs, with some remarks on some of their diseases.

In giving my views on these subjects, I deem it important to state some of the various ways of raising, feeding and fattening hogs in different sections of the country, which, according to circumstances, soil and climate, will differ; and

remark naturally arises to the mind of every one who inspects this really very superior breed, how has it arisen that these animals have until now remained unknown within a journey of seven or eight days from Calcutta? The only answer is—most people go through life with their eyes shut. We hope Mr. Huffnagle will fully carry out his intention of breeding from these cows not only by a Nagore but by an English bull, and our desire is still greater, that a Lepcha bull should be brought to the presidency. We saw the cows during the hottest period of the day, and, though in not the best sheltered of sheds, they did not seem to suffer from the heat; whilst the Yak, though in a much cooler place was panting extremely.—*Calcutta Courier, May* 22.

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To Chilton Allan, President of the Kentucky State Agricultural Society.

From the Franklin Farmer (1838.)

I have seen, in a late number of the Franklin Farmer, your circular address, calling upon the friends of improvement for essays upon a number of important subjects relating to the agricultural interest and pursuits of the state. Approving heartily the noble objects of the State Society, I read your address with great satisfaction; and I cannot but believe, that the action of the society will bring about the most gratifying results in improving the science of agriculture and hence the condition of the husbandman; for I cannot doubt, that every one who desires improvement himself and who would derive useful information from others, will hold himself bound to contribute something to the general stock of knowledge. There are few intelligent farmers who do not know something unknown to others, and it is by an interchange of sentiment and opinion as well as of experience and practice, that the farmers of the country will be able to see and reject the errors of their husbandry and adopt those modes instead, which lead to improvement and success. In this view, I offer an humble tribute, which at least has the merit of a well meant design of benefiting others in some respects.

The commencement of our prosperity may be dated from the period when our agriculturists turned their attention to the raising of stock for export; and as the consumption and demand have increased in a ratio with the increase of population and wants of the people of the United States, the business has become a source of wealth to Kentucky. And no where has the improvement of stock been so great and so general, nor more zeal and perseverance manifested to improve the breeds of horses, asses, cattle, sheep and hogs. In enumerating these descriptions of stock, the last is not the least important in bringing wealth to the state, and should be looked to with a fostering care and attention.

Under this belief, I humbly submit to the public through you, the following observations on the management of hogs, with some remarks on some of their diseases.

In giving my views on these subjects, I deem it important to state some of the various ways of raising, feeding and fattening hogs in different sections of the country, which, according to circumstances, soil and climate, will differ; and

conclude with my views as to the best mode to be adopted by the farmers of Kentucky under her peculiar circumstances. In Europe and many parts of the United States, hogs are indispensably kept in pens or sties, and as the numbers raised are comparatively small, there is no great expense attending the manner of feeding them; indeed, this is the most economical, cheap and convenient method of fattening that could be adopted in any country where the number fed is small. In some of the New England states large buildings have been erected for raising and fattening hogs on an extensive scale, fed almost exclusively on vegetables produced on a few acres of land, which gives a profit of 50 per cent. more than any other way in which the products of the land could be disposed of. On this extensive scale, the business is unconnected with any other, having for its object, the raising and fattening of hogs alone, for it requires the most strict attention which daily habit and the most scrutinizing observation, in time reduced to a perfect system, can give. It was ascertained to a fraction, what each hog would eat at a meal, which was measured out to him three times a day, the quantity according to age, allowing six of the same age to occupy a sty, which was regularly littered and cleaned out once a day. The amount of vegetables required per day, and the necessity of the different varieties coming on in due season, would require great attention. At the first view of the subject, we would conclude that a piggery conducted in like manner in Kentucky, would be equally profitable. But not so—there would be this difference:—The price of pork and lard in Boston is more than 50 pr. ct. higher than in Louisville: and the profit accruing from the superabundance of manure, which is worth from two to three dollars a load in the New England states, will amount to a large sum, which with us would be excluded from the estimate, as it will bring nothing here on sale, though useful to the land on which the hogs are fattened. In 200 hogs annually sold, these causes would produce a difference of perhaps three thousand dollars in favor of the New England piggery.

Say 200 hogs at 200 lbs. each, 40,000 lbs. pork at 10 cents in Boston	$4,000
For their manure - - - -	1,000
	$5,000
40,000 lbs. pork at Louisville at 5 cents	2,000
Leaving a difference in favor of the N. E. piggery - - - - -	$3,000

In no way could an extensive piggery be made profitable to us but by being connected with a distillery. The expenses would then be much lessened; for it would require but a few vegetables or a little meal added to the slop of the distillery to make the swill highly nutritive. They might be put to graze in the summer and swill given them occasionally, and again put up in the fall.

The manner of feeding and fattening hogs now generally adopted in this state, seems to me to be well calculated for our method of cultivation. Taking into consideration the products and the great number of hogs fatted for other markets, together with the great number of beef cattle annually grazed and fed, the system is complete. In winter they are amply supplied with food from the refused corn and pudding of the cattle—two or three hogs to each head of cattle finding thus abundant sustenance. In the spring, when the cattle are no longer fed, the hogs are put on the exuberant clover field, which was sown for the double purpose of enriching the land and supplying rich food for the cattle and hogs. In due time, when the clover becomes hard, and unfit for the hogs, it is given up to the earth, and they are removed to the rye fields, there to fatten and complete another system of manuring, so admirably adapted to our lands and our wants. So soon as the rye field is consumed, the corn field is ready to receive them* and in due time they are ready for market, leaving the fields and pastures richer than they were.

Although this arrangement is good for feeding and fattening, yet there are other important matters in relation to their raising and health, which in no wise should be neglected. Experience has taught me, that no matter how many pigs a sow has over six, they should be reduced to that number, always retaining the large and healthy ones; for I can and will demonstrate that six pigs will make more pork at 12 or 18 months old, than eight would of the same litter—and eight will make more than ten. Give to the six the food which you would give the eight or ten and you will find, in the result, the truth of my statement proven. It is essential that pigs be kept fat while sucking, and to have them so, six is a better number than eight or ten. At weaning time, or when sixty days old, the time when the sows decline in milk, particular attention should be paid to the pigs, having them regularly fed either with corn or swill, for at this juncture, they are unaccustomed to *root for themselves* and will rapidly lose their flesh and their health, and their growth will be retarded, if left to shift for themselves. If they are kept fat during the fall, when provisions are plenty and cheap, they will keep thrifty and well through the winter, on very moderate feeding; but I prefer liberal feeding throughout. The food is by no means thrown away, as you will have more pork and not any more corn consumed in the end.

Hogs should be kept free from diseases; particularly the disease of worms, which is very pernicious and a constant attendant on poor hogs. Liberal feeding at all times is the best preventive; *but when it is not in the crib*, brimstone, spirits of turpentine, or tar mixed with their food will remedy the evil. All hogs are more or less subject to worms; but some are so overcharged, that their intestines are literally filled with them, and unless they are extirpated, it is throwing away corn to feed them, for in this condition it is almost impossible to fatten them; they will consume twice as much as a hog will not troubled with them, as the nutricious juices are taken up by the worms, and their fetid excrement is all that is left as a miserable substitute for sustenance.

* We presume our writer does not intend to be understood, that the hogs are turned into the corn field; for though this practice may be adopted by some, the more general custom is to put them in a large pen adjoining, into which the corn is thrown. If the corn is not sufficiently ripe when the rye is consumed, old corn is fed to the hogs; and indeed, the feeders generally, we believe, prefer beginning to feed them on old corn after they are put up—introducing the new rather cautiously and gradually.—Ed. F. Farmer.

The most fatal disease of hogs is the swelled throat or quinsy. This too, is easily prevented. I have long been of the opinion that it proceeds from indigestion, caused by feeding on hard grasses or clover in their declining state; and my successful practice as a preventive for the last eight years is a strong confirmation. Yet it matters not concerning the cause, provided there is a remedy. The disease in the last stage is highly inflammatory, but at no time infectious. It is an accumulation of matter formed between the glands of the jowl, which continues to inflame till the hog dies by suffocation. The disease may be cured before and after the matter begins to form; but as it may be more satisfactory to state my experience and knowledge on the subject, I will give an instance as coming under my observation and conclude with my practice as a cure and preventive. In 1830, I discovered the disease among my hogs by the death of one of my fattest. As soon as possible, I had them removed from the clover field, and put in a spacious pen, where they were fed with as much corn as they would eat after it was glazed with tar and as much ashes put on as would adhere to the grains. They still continued to die, till I lost to the number of fifteen. This great number dying out of eighty, caused me to doubt the efficacy of the remedy or that the disease was too rapid for its effect. Shortly after, they were put up to fatten, which they did very readily, and I was left in doubts as to the effect of the medicine, until the day I butchered, when I found lumps of coaguluted matter in the jowls of many, about the size of a hazelnut or larger, without any signs of inflammation around them. I then came to the conclusion that they would have died had it not been for the remedy applied, and that the disease of those that died had advanced too far to be cured by any remedy. Observing that hogs kept in sties never had the quinsy, I attributed it to the wholesome quality of food they ate, and on the contrary, the cause of their having it out of sties, to the pernicious qualities of hard dry grasses. Since 1830, I have invariably given my hogs during the spring and summer months, when grazing, slop or swill once a week or oftener, consisting of kitchen slop with cooked vegetables of various kinds, apples, &c., with bran or a little meal, mashed to a paste, salted and cooled off by adding a quantity of water, and occasionally brimstone or saltpetre. Since the above date, my attention has been directed to the raising and fattening of hogs on the products of a small farm, and I have never yet lost a hog by this disease nor in my recollection by any other. My opinion is still further supported as to the cause of the swelled throat, by its being less frequent since the practice lately adopted in putting the hogs to graze when the clover is young and tender, and taking them off when it is old and tough.

Every body knows that the young and old hogs should be kept apart in winter; and yet how shamefully this important matter is neglected by many. Young and old, great and small are crowded together, day and night, mashing and smothering; and yet many will look on with heedless regard at the great destruction of the young stock, without separating them. When young and old are fed together, the old will always get more than their share, thereby the young become poor and diseased, making little or no progress in growth.

The breed of hogs best calculated for our general purposes is yet to be ascertained. Within a few years, great exertions have been made, at considerable expense, to procure the best breeds, but whether any of them answer our expectations, I think very doubtful. The breeds imported here, were improvements made to suit the purposes of others under different circumstances, different soil and climate, different food and management and under a different method of disposing of the pork; and according to our present mode of farming, thus differing from the methods abroad, whence these hogs have been brought; and our surplus pork being chiefly driven to the south, I think ultimately they will not do except in the event of the successful completion of the rail-road from Lexington to Charleston. Then the smaller and earlier matured hogs, the Byfields, the Berkshire, the Bedfords, &c., will be more profitable than the larger breeds. But should this all-important improvement to the west prove abortive, the hog that will be best calculated for our interests is yet to be improved by some judicious cross from our present great variety of breeds. The fat varieties, as the Bedford, Berkshire, &c., from their early propensity to fatten, are best for family use and home consumption; but owing to their incapability to travel, they must measurably give way to the longer legged hog, until the rail-road from Lexington to Charleston is complete.

BIRD SMITH,
Member Ky. State Ag. Society.

REMARKS ON THE SOILS OF PART OF SURRY COUNTY.

By the Editor.

A large proportion of the lands of the lower part of the county of Surry (or that part east of the Court-House,) have some peculiar features, which are but little known to strangers, and seem to be but little appreciated by the residents; and which ought to render these lands interesting and profitable subjects for agricultural improvement.

The eastern half of the county, to which these remarks will be mostly confined, is bounded by James river or the north, and by Blackwater river, or swamp, on the south. The general surface is remarkably level; but in the northern part, from which the water flows towards James river, the streams generally pass through pretty deep ravines or valleys, the sides of which form short and steep hill-sides, which intersect the table land, and form exceptions, and in strong contrast, to its general level surface.

The level of the much obstructed Blackwater river is much higher than that of James river, and therefore the descent to it much less from the intervening ridge, or highest table land. Hence the tributary streams are more sluggish, and run through shallower depressions; and the water therein forms swamps, or "slashy land," more often than freely running streams. The heads of the small streams which are discharged toward these opposite directions leave in the middle a dividing strip of higher land, which will be

termed the *ridge*—though it is the most level land, and not perceptibly more elevated than the other table land.

The soil of all this body of land (disregarding small exceptions on the river banks and other peculiar localities,) may be divided into two general classes, of light sandy soil and the close and stiff soil. Large tracts of there two kinds are intermixed throughout the whole surface of table land and gentle slopes; and the transitions from one to the other are often quite abrupt. Many farms are almost entirely of the one soil, and others of the other; but most of those which are more than 3 or 400 acres in size have a portion of each kind of these soils of very different texture.

None of the land, of either kind, could have been rich, before cultivation; and all, after long and the usually exhausting cultivation, is quite poor, or otherwise unproductive. The light land, from its greater ease of tillage, has been most worked and most impoverished.

The stiffest lands are there called *pocosons*, and all inclining to stiff approach more or less to the stronger characteristics by which a real pocoson tract is known. Before being injured by cultivation, all this kind of land was abundantly supplied with vegetable matter, but was rarely productive, even under its earliest or best cultivation, because of the want of draining, and the want of calcareous matter in the soil. The universal excess of surface water, through winter and spring, necessarily caused bad tillage and poor products, even where the food for plants was present in excess; and the deficiency of calcareous ingredient completed the destruction and waste of the vegetable food of plants as early and completely as possible. Yet both these defects might be supplied with as much ease, and profit, as could almost be desired.

The pocoson land, in its natural state, is covered by a heavy forest growth, of large and excellent pine timber, and of oak; the white oak being most abundant as the land is stiffer or wetter, and red oak as the land is less stiff and wet. The surface is closely covered with an undergrowth of very tall whortle-berry bushes. These marks, of themselves, would sufficiently indicate a highly *acid* soil, greatly needing, and greatly to be improved by, the application of calcareous matter. But draining is absolutely necessary; and, strange to say, it is scarcely attempted, or thought of, as a necessary general system, on these lands. They are even generally cultivated flat, or without ridges and water-furrows, which would alone serve to vent much water, if merely run in a proper direction. Some small parts of the pocoson land are naturally drained, by having more inclination of surface, and being bordered by lower land, serving as channels to convey away streams. And some of these spots have been very productive and durable under cultivation, though of precisely the usual texture and objectionable qualities (except wetness) of the pocoson land in general.

It is not subterraneous water or springs that affect this land in the least. It is merely the excess of rain water, which cannot flow off, because of the almost perfect level of the surface of the land, and cannot sink, because of the perfectly impervious nature of the subsoil. Hence, all this land, though dry, and generally much too dry in summer and the early part of autumn, is either saturated or inundated with rain water in winter and spring. There could be no more effectual causes for most laborious tillage, and unproductive and speedily exhausted fields; and also, as it would seem, for a sickly region—though this last effect is not so apparent as the others.

The soil of the stiff land is not clay, but a gray loam, of which the sandy portion is so finely divided as to render the soil stiffer and closer than clay alone would be. But this would not be a cause of wetness, by retaining two much water, if the subsoil were pervious. This is however a yellowish, close and adhesive clay, for the depth of 10 to 15 feet, or more. Below lies quick-sand (or almost pure sand filled with water,) into which the shallow wells are sunk. If our climate were as moist and cool as that of Scotland, these lands could not be tilled at all, as is now done in Surry, and would in time be converted into a great peat moss, more like the Dismal Swamp than arable land.

The most valuable thing connected with this region is the great quantity of very rich and easily accessible shell marl; with which most of the the lower Surry lands might be covered at a very small cost—and to the least accessible of which it might be carried cheaply enough to make the operation profitable. The effect would be abundantly striking, even on the most worn and impoverished lands, where the benefit of marling would of course be the least. But if applied to the wood or virgin land, before cultivation, and combined with proper drainage and tillage, the degree of permanent fertility induced would be beyond the belief of those who are content to work these lands without either means of improvement.

The marl generally shows at the surface (or it "crops out") on the hill-sides of all the ravines and valleys leading to James river, and is found on almost every farm on the space between the summit ridge and the river. The ridge alone, making a strip usually of 3 to 4 miles wide, has no marl in sight, or other than lying too deep for use. Between that strip and Blackwater, the marl is also very abundant, though not often exposed to view, owing to the absence of deep ravines and steep hill-sides. But the general surface is so level, and the marl to be had is so rich, that it would be as cheap to apply marl to fields two miles from the pits, as in many usual cases at half a mile. Moreover, when the tract passes through forest land, temporary wooden rail-roads might be cheaply constructed, on which the labor of draught would be greatly reduced.

Though marl has been but little used in Surry, in general, compared to the inducements for its more extensive use, still particular individuals have done enough, even if not the most judiciously, to show excellent and remarkable effects, to gain great increase of farming profits, and to indicate clearly to those who understand the mode in which marl acts, the much greater profits which would be certainly gained from a more judicious mode of application. Many proprietors have marled extensively, and have been for years reaping the profits.

Both the light and the stiff soils have been generally much improved in product by marling. The former however are too light for wheat and clover, even after being marled. On the stiffest

and wettest lands, neither marl nor any thing else can do much good, until draining has removed the great evil of excess of surface water, which prevails for half the year—and which serves to increase the injury from drought, and a hard sun-baked surface, in the other half.

There is but little draining attempted on these lands, and that little is of very little effect. It is only to remove ponds and the longest standing water. The great body, which is merely a muck of mire through winter, and is necessarily ploughed wet in spring, and of which every acre needs draining, is left to be dried by the sun; and less than half a crop is obtained by the regular application of at least a double amount of tillage labor. And this excess of labor is far more costly than would serve to drain the land effectually. All that is necessary for this end, (on land already long cleared and tilled,) would be to plough the land when in good state as to dryness, into good beds or ridges, of width suitable to the designed culture, with deep and clean water-furrows, and in the directions best suited to discharge the water into lower levels. We go upon the supposition that the farmer is inexperienced in draining operations, and does not know practically the use of levelling instruments. After the land has been so ploughed, (which ploughing of course should be the preparation for the next succeeding crop, and which, therefore, would be no additional cost,) he may wait for the next heavy rain to show, by the standing and the flow of water, where the cross ditches are needed, and where they should lead the water. More knowledge and experience would direct a better mode of procedure; but even this alone would save enough subsequent labor, and add enough to the products, to pay for the improvement in the first year.

In the newly cleared pocoson land, incumbered by stumps and filled with roots, the drainage, to precede cultivation, would require more judgment, and very much more labor. But the increase of reward would be still greater than of the difficulties. We entertain no doubt, that if such land as we heard described were both well marled before being cleared, and well drained before being cultivated, it would yield for ever after, to judicious and *easy* tillage, four times as much product as it usually does to the most laborious, disagreeable, and *disheartening* tillage operations. We know of no subjects for agricultural improvement more inviting, and promising better profits, than the improvement and proper management of these lands. But, without marling and draining, we would deem the land not worth accepting as a gift, on the condition of its being held and cultivated.

The prices at which the Surry lands are held are in general high enough for the usual condition and products of the lands; but very low if compared to the facilities and inducements for improvement. They range from $1.50 to $10 the acre. And the higher estimates do not seem to be so much determined by the intrinsic value of the land, as by favorite location, or something else other than calculations of products and profits. Some of the best river farms would sell higher than $10, and some small and poor tracts, even lower than $1.50. But these are rare exceptions. The demand of particular individuals serves to fix prices more than the real advantages of the land. Thus a tract sold at public auction may command $6 the acre, because one or two neighboring land-holders may wish to add it to their estates—and if the same land had been a few miles distant, without such adjacent neighbors, but in all other respects as desirable, it might not have commanded above $3 the acre. In a word, there is no regular demand for land, in general, but only such as is caused by the uncertain and varying wants of a few individuals. And there is very little inducement to a non-resident to purchase even the cheapest of the lands, which are sold at auction at almost every court day, because they are generally too small, poor, or, under other disadvantages, to be worth settling upon or of holding alone.

COLLECTING FOSSIL SHELLS.

Being desirous of making a collection of the shells and other fossils of the marl beds of lower Virginia, (or elsewhere,) we request of our friends and readers who have carried out marl this autumn, to collect and send to our office the most perfect specimens of all varieties of shells and bones which their pits may furnish. Each shell should be wrapped separately in paper, to prevent injury from rubbing in transportation, and the whole packed in a box or keg. The locality of each parcel should be stated. As some small return for the trouble thus incurred by our friends, any specimens of marls of which they may desire to know the strength, and that may be put up, properly labelled and sent with the shells, will be analyzed, and the results reported to the proprietors.

When the shells are very small and numerous, it will be well to send some lumps of the marl containing them. It will be safest not to clean the marl from the larger shells very closely, for fear of injuring their surface.—Ed. F. R.

BOARD OF AGRICULTURE.

To the Editor of the Farmers' Register.

Seeing, in a late number of the Farmers' Register, a proposition to arrange some plan for the commencement of the meetings of the Board of Agriculture established by the last legislature of Virginia, I take the liberty of suggesting that each member of the board lately appointed by the executive should propose to the executive such a plan as he might think proper, and request the executive to convene the board as may be thought best by the majority. The meeting of the legislature will afford an opportunity of obtaining any aid that may be thought necessary by the board to effect the contemplated object: therefore I would propose that the first meeting of the board should take place at an early day of the next session of the legislature.

Aug. 19, 1841. One of the Board.

OIL SOAP—WILLIS' SYRINGE.

From the New England Farmer.

Mr. Putnam,—Sir:—I have lately noticed advertisements and communications on oil soap, for destroying insects upon rose bushes, small trees, &c. It ought to be known by those who cannot obtain the oil soap, that strong suds made of common soft soap will answer most of the purposes attributed to the former. It kills the snail, keeps off the rose-bug, and I have preserved my plants by it, for several years, against the attacks of the curculio. In sprinkling the plant, it is necessary to do it early in the morning, while the dew is on, because it is difficult to wet a dry green plum.

Willis' brass syringe is recommended for using the soap. I would not willingly be instrumental in discouraging the use or sale of that almost indispensable implement; but, for the purpose of throwing suds upon small single trees and shrubbery, a smaller syringe than any I have seen of Mr. Willis' make, is much more convenient and economical. Go to a tin-shop and get a tube made ten or twelve inches long, which will hold from a gill to half a pint, with three or four small holes in the end to produce as many streams, and the jack-knife of any Yankee of common ingenuity will make a good piston in a few minutes. This will save your suds, is managed more readily, and with equal if not greater effect upon such trees.

R. NEWTON.

Worcester, Aug. 2, 1841.

LATE WHEAT.

To the Editor of the Farmers' Register.

Berkeley, Sept. 16*th*, 1841.

* * * * *

My last effort with seed wheat procured from Winchester was a decided failure. The grain was obtained last fall, and was as fine as I could have wished; but I had at the time doubts as to its success, as I have rarely succeeded on the Berkeley lands with bearded wheat; and I was unable to procure any of the smooth-headed kind, such as I approved. That which I purchased was exceedingly slow in maturing, and my experience satisfies me, as a general rule, that all late wheats with us are worthless; if not ripening at the usual time, they invariably are affected with rust. Indeed my own observation leads to the conclusion that, be the season what it may, the wheat which ripens first is nine times in ten the best.

Marl is doing much for our lands; but operates much more efficaciously on the soft, friable lands, than on the stiff, tenacious clay.

BENJ. HARRISON.

A SIMPLE MEANS OF PREVENTING THE FAILURE OF THE POTATO CROP.

By Mr. Robert White, Farm-overseer to David Anderson, esq., of St. Germains.

From the Quarterly Journal of Agriculture, for September.

It will be allowed by all practical farmers that the potato sets when cut discharge a large quantity of fluid or juice, the loss of which has a tendency to weaken the germinating powers of the sets, and at the same time exposes them to undergo fermentation in the heap.

In 1833, we had our seed-potatoes from the parish of Penicuik. When cut, I desired the women to riddle a shovelful of hot lime on every basketful of new cut sets. They were turned over and over again, until the lime was taken up by the sets, when they were put into a heap three or four feet thick, where I have kept them for two or three weeks. The hot lime had the effect of stopping the flow of the juice, and of encrusting a strong skin on the sets. This crust, on the one hand, preserves the sap being drawn away from the sets in a dry season among dry soil, and of repelling wet in a wet season among damp earth. The sorts of potatoes experimented on were dons and blues. The land was in a fine moist state, well worked, and the dung well made, and they were ridged in the last week of April. There was a regular braird, and the crop was fine.

In 1834, our seed-potatoes, dons and blues, were obtained from the same parish, and treated in the same manner. The ground was very dry, the dung dry, and the heat great when they were planted; so dry that the dust was flying from the strong clay-soil when drilled up. The braird was regular and the crop fine, with the exception of eleven drills which were planted without the sets being limed, and which proved a complete failure, and of some ox-nobles which also failed.

In 1835, we did not change our seed-potato. One-half of the land was dunged on the stubble in October, and the other half in spring, part of it on strong clay, and part on light loam. The dung was very dry in spring, the land not well worked, and the planting finished in May. The braird was regular and the crop fine, although there was a general failure of the crop throughout the country.

In 1836, the seed-potato was obtained from the neighborhood of Edinburgh. They were buffs, and treated in the same manner as described above. The land, a fine dry light soil, was in oat stubble after old grass, and full of wire-worm. The dung was very dry, the land well worked, the braird regular and the crop fine. There was none planted without the lime this season.

In 1837, the seed-potato was obtained from Leader Water dons and blues. A fine light loam was well worked, and dunged with well made dung. The crop was planted in the second week of May, and proved a fine one. None planted without the lime this season.

In 1838, the seed-potatoes came from Gala Water, dons and blues, which were planted in the last week of May, on land not well worked, and the dung very dry, but the braird was without a blank, and the crop fine. Two bolls of seed-potato from Peeblesshire were tried without lime and proved a complete failure, the insects having eaten the sets to a shell. These were planted in the last week of May.

In 1839, the seed-potatoes were from Gala Water buffs, and which were planted in the last week of April, in strong clay soil, not well worked, and the dung very dry, but the braird was very regular, and the crop fine. There were none planted without lime this season.

In 1840, again, the seed-potatoes were from Gala Water, dons and blues, which were planted in the end of May in a light loam full of wire-worm, but well worked, and the dung very dry. The crop was fine. A few drills were tried as an experiment without the lime, and they were so complete a failure that they were ploughed down.

OPERATIONS OF LICHENS.

From the British Farmers' Magazine.

To the lichens may well be applied the title of *vernaculi*, or bond-slaves; which Linnæus fancifully gave to the sea-weeds, regarding them as fettered to the rocks on which they grow. For the lichens seem, as it were, chained to the soil which they labor to improve, for the benefit of others, although they derive no nourishment from it themselves. The mode in which they prepare the sterile rock for the reception of plants which require a higher kind of nourishment, is most remarkable. They may be said to dig for themselves graves for the reception of their remains when death and decay would otherwise speedily dissipate them; for, whilst living, these lichens form a considerable quantity of oxalic acid (which is a peculiar compound of carbon and oxygen, two ingredients supplied by the atmosphere,) and this acts, chemically, upon the rock (especially if of limestone,) forming a hollow which retains the particles of the structure when their term of connected existence has expired. The moisture which is caught in these hollows finds its way into the cracks and crevices of the rocks; and, when frozen, rends them by its expansion into minute fragments, and thus adds more and more to the forming soil. Successive generations of these bond-slaves continuously and indefatigably perform their duties; until at length as the result of their accumulated toil, the barren and insulated rocks, or the pumice or lava of the volcano, become converted into fruitful fields. For, when Flora's standard has once been planted on tracts thus claimed, they are soon colonized by plants of other tribes. The mosses, ferns, and other cryptogamia follow them; and at last, by the growth and decay of successive generations of plants, a sufficient thickness of soil is produced for the nourishment of the luxuriant herbage and the support of the lofty forest-tree. And thus, by the labor of these apparently insignificant plants, men are enabled to reap their harvest and to supply themselves with timber from the forests; and cattle increase and multiply on what was formerly but a naked and desolate rock.

THE DUTCH COMMERCIAL SYSTEM.

From the European.

One of the leading principles of the Dutch merchants is short credit. It is extremely difficult for a bill-broker on the Bourse, at Amsterdam, to obtain discounts for paper unconnected with actual real transactions, whose particulars are known to the party discounting. The merchants of Holland have never been charged with any want of enterprise, or deficiency in spirited speculation. They have, on the contrary, been at all times ready to engage in any adventure, however hazardous or however remote, provided there was held out a reasonable prospect of even a moderate profit. We are, therefore, entitled to infer that commercial enterprise among the Dutch does not necessarily depend on long credits as an originating or sustaining stimulus. It gives us a strong proof of the well-working of this system, that bankruptcies are extremely rare in Holland—greatly more rare than in any other mercantile community. As an instance of this, in point, notwithstanding the loss and interruption to all sorts of business occasioned by the French, in 1795, the bankruptcies in that and the subsequent season were not, comparatively, so numerous as in England in ordinary years; while, during the subsequent convulsions arising from the separation of Belgium, no suspicion was ever entertained of the solvency of any considerable mercantile house in Holland or Flanders. Bankruptcy in Holland is tantamount to mercantile death; for no bankrupt can again go into or carry on any respectable business.

PROTECTION OF THE HOP-PLANT FROM INSECTS.

From the British Farmers' Magazine.

Mr. John Hobbs, of St. Ives, Cornwall, effects the destruction of all the small insect tribes which infest the hop-plant, by the erection of rails of a particular construction, smeared over with coal-tar, or the saturation of the poles with a solution of copperas.

COAL DUST.

Mr. Webster, of Ipswich, filled garden pots with fine coal dust, and placed a variety of plants in them, such as potatoes, onions, &c.; in all of which the vegetation was vigorous and luxuriant. Strawberries, onions, and a variety of useful and ornamental plants thrive extremely well in this material, which is clean, neat, inoffensive, without odor, incapable of harboring insects, well adapted for in-door floriculture, and enduring for a long period.—*Trans. of Society of Arts.*

PRELIMINARY REMARKS ON THE FOLLOWING NOTICES OF GRASSES.

Having very recently had the benefit of the company and aid of a friend, M. Tuomey, esq., who possesses that knowledge of botany of which we have often before confessed our entire deficiency, we have been enabled thus to be informed and to have determined the botanical names and characters of grasses and other plants of which

before we knew, at most, only the vulgar or provincial names used in this particular region. It is true, that the scientific names of most of the valuable cultivated grasses had been correctly determined before, and have been treated of in different articles in this journal. Still, of some other grasses and other plants, remarkable for good or bad qualities, as much ignorance remained as to names as in other respects.

The few and irregular notices which we may offer, (only in the absence of information from others better qualified to afford it,) will consist merely of statements of such qualities and characters of the plants in question as are deemed interesting or useful to be known to farmers, because of the bearing on agriculture. And, even in these respects, we may be expected to fall into many and great errors, owing to mistakes, to the want of sufficiently careful foregone observation, and perhaps also from forgetfulness of things from which we have been almost entirely absent for the last nine years. Therefore, we beg that our own contributions to the work of fixing the nomenclature and characters of grasses may be considered as both wanting and open to correction from other persons; and we shall be gratified to have knowledge on the subject extended by the pointing out our mistakes of ignorance, if they exist, as well as in any other way.

For the botanical names, and for every scientific fact, which may be used in our own contributions, we shall be indebted to Mr. Tuomey. The manner of our combined investigations was this: His attention was requested to such particular grasses or weeds as information was most needed upon, and he gathered the specimens, if they were to be found so late in the season, (after the 10th of September,) or if not already contained in his previously gathered collection of dried specimens of grasses. Not having expected such useful and ready assistance, we had gathered but very few earlier specimens; and not only for that reason, but also for want of opportunity, and still more for want of the knowledge to distinguish species with the absolute certainty necessary for their selection. Indeed, upon such previous trials as our scant opportunities offered in the summer, we found uncertainty even as to particular specimens of grasses, which we had long well known as seen growing in quantity. And still another difficulty we have but recently learned from Mr. Tuomey, which we had not before suspected. This is, that of some common grasses, which had been supposed to be of but one kind, there are two or more species or varieties, either of which (and perhaps the least important of them) we might have gathered, and furnished to a botanist as the only known grass of the kind.

We should have been better pleased to follow than to precede the first promised labors of Mr. Curtis and others, for this general object. However, we trust to have something from them before long. In the mean time, the notices which we shall offer will be presented as in continuation of the communication of Dr. Darlington, published at page 114 of this volume of the Farmers' Register. In these remarks there will be no attempt at formal and regular description; and in any others, from other sources, there need be none. If facts are presented, and errors corrected, it will be unimportant as to the form in which the information may be presented.—Ed. Far. Reg.

NOTICES OF GRASSES AND WEEDS.

(Subject resumed, from p. 114 of Farmers' Register.)

WIRE GRASS.

Synonymes and provincial names.—*Wire grass*, in lower Virginia—*Cane grass*, in New Hanover, N. C.—*Joint grass*—*Bermuda grass*, of South Carolina? Botanical names given below.

To the Editor of the Farmers' Register.

The grass you pointed out to me as the "*wire grass*" of lower Virginia is not the *Triticum repens* of the botanists, but the *Cynodon dactylon* of Persoon, the *Digitaria dactylon* of Elliott, and *Panicum dactylon* of Linnæus.

The following description, from Eaton and Wright's Botany, is very accurate.

Cynodon. Glumes two-valved, lanceolate, spreading: paleæ 2, longer than the glumes, the outer valve larger, somewhat oval, and surrounding the inner one: rudiment minute, pedicelled: scale truncate: spike digitate and fascicled: flowers solitary.

C. dactylon, creeping: spikes digitate (4-6) spreading: keel of the glume scabrous: leaves hairy on the margin and base: sheaths hairy (glabrous?)

The *C. dactylon* is a native of Cornwall, England, the south of Europe, the shores of the Levant, the East Indies, and New South Wales. Sir W. Jones, in his Asiatic Researches, mentions the beauty of its flowers, and its sweetness and nutritious quality as pasture for cattle.

Dr. Darlington, p. 499, Farmers' Register, classes the *Cynodon dactylon* among the grasses valuable "in fixing and keeping together the blowing sands of the sea-coast, by their creeping suckers and tough entangled roots." He also says, "The roots are employed in India in the preparation of a peculiar beverage." Perhaps it would be difficult to give a more concise and accurate popular description of this plant, than the one given by Dioscorides, who describes it as a plant with "jointed creeping shoots, throwing out sweet roots from their joints; and pointed, hard, broad leaves, like a small kind of reed, which are the food of cattle."* The digitate

* Rees' Cyclopœdia. Art. *Panicum*.

spikes of the plant resemble those of *Digitaria* so closely as to be easily taken for a species of the latter, so that a person observing the flowers, without attending to the general habit of the plant, would be likely to pronounce it "*crab grass*," the name applied here to the different species of Digitaria, two of which are common, the D. sanguinalis and D. filiformis.

M. TUOMEY.

Remarks.

The account above sufficiently points out a very great mistake into which I had fallen in regard to "wire grass;" and my confident assertion of that mistaken opinion served to mislead those much better informed, and who knew wire grass only by loose description. At page 115 of this volume, in the commencement of my account of the wire grass of lower Virginia, which Dr. Darlington had spoken of as the *poa compressa*, it was stated (as a correction of his mistake) that the wire grass was the couch grass of England, or *triticum repens*. I was long ago led into this error by the many general notices of couch grass by English writers, which seemed to apply exactly to wire grass; and I was confirmed in the mistake by having made the inquiry of an intelligent farmer, who was a native of and had been a cultivator in Great Britain, and being answered that these grasses were the same. Upon showing the wire grass to Mr. Tuomey, he saw at once that it was not the *triticum repens*, of which he had a dried specimen in his herbarium which he gathered on the Eastern Shore of Maryland, and which is altogether different in appearance. His views, presented above, and my previous remarks at page 115, leave nothing for me to supply here except the correction of my own errors, and omissions.

In the account referred to, it was stated, rather too broadly, that this grass "will scarcely grow except where there is enough of lime to constitute a good and fertile soil." There should have been stated a further exception, viz: that on the most sandy and dry soils, which qualities of soil are very favorable to this grass, it may be sometimes found in scattered and feeble growth, even though the soil be acid, or very deficient in the calcareous ingredient.

The power of vitality in the wire grass is very remarkable. Every cultivator of good light loams, or rich sandy soils, in lower Virginia, knows the great difficulty of killing the roots by ploughing, harrowing, and even by exposure on the surface of the ploughed earth. And I have known the gathered and removed roots, which had been kept sunk in a deep pool of water, in the middle of a barn-yard, remaining a long time, and being part of the time covered there with several feet thickness of the barn-yard litter, to vegetate when taken up and exposed again on the surface of the ground.

E. R.

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DARNEL—LOLIUM TEMULENTUM.

Synonymes.—*Lolium temulentum*,—*Darnel* and *Bearded darnel*, in England—*Spelt*, in lower Virginia.

Botanical description.

LOLIUM. *Spikelets* many flowered, alternate, distant, sessile at right angles with, or the edge to the rachis. *Glume* a single bract, except at the terminal spikelet, where there are two. *Paleæ* herbaceous, nearly equal; lower one awnless, or sometimes with a short bristle at the tip.—*Nutt. Gen.*

The *L. temulentum* can be readily distinguished from the *L. perenne* [rye or ray grass] by the *glume* which in the L. temulentum is longer than the spikelets, in L. perenne shorter. M. T.

General Remarks.

Darnel, or spelt, is a hardy annual, that grows much in the same manner and under like circumstances with wheat, rises to about the same height on ordinary and poor soils, and ripens at the same time. The plant and the seeds are larger than those of the English rye-grass, which otherwise very much resembles spelt. The seeds also, as enveloped in their close and inseparable husk (or glume,) are nearly of the same size with the smaller grains of wheat, and not much varying from wheat in specific gravity. Therefore they cannot be entirely separated from wheat, either by the fan or the screen; and this, added to the peculiar deleterious qualities of the grain of spelt as food, cause it to be the worst weed that infests the crop of wheat. Luckily it is but a new importation to the United States, and is known as yet but in few places. It is common in Europe, and its poisonous qualities were known to the Romans, as appears from a passage in Virgil.* Still, darnel does not seem to be much regarded as an injurious weed in England; and therefore it may be inferred that it is better suited to our warmer climate, or to our bad tillage. Where it has been permitted to become abundant, it is, as the writer has fully experienced, the worst of all the weeds that injure wheat by the admixture of their seeds.

I remember well that the first plant of spelt I ever saw, was about 30 years ago, in the county of Prince George. Its novelty induced me to gather the bunch, as a rare and beautiful, and what perhaps might prove a valuable forage grass. It must then have been very scarce in that neighborhood where it has since become, on particular farms, so abundant, and is no where entirely wanting. But though so recently a stranger, spelt has gained long ago the same character that cheat (*bromus secalinus*) possesses, of being the degenerated product of wheat. In addition to all other reasons against this belief, it would seem as enough to overthrow it, that this supposed conversion of wheat to spelt could have occurred on but few and limited localities—and if such a change took place any where,

* "Infelix lolium," &c., noxious lolium, &c.—*Geor. lib. i., l.* 154.

"The bearded darnel is frequent in some countries, but it is comparatively rare in this [England]. It has been condemned as a poisonous plant for more than 2000 years."—*Low's Practical Agriculture.*

"There is but a solitary instance alleged of the unwholesomeness of the seeds in the entire family of the grasses, viz.: those of the darnel, (*Lolium temulentum, L.*,) a common weed in many parts of Europe, but scarcely known in the United States; and even in this case, the deleterious effects are probably exaggerated."—*Darlington's Essay on Grasses.*

it ought to be *every where* that wheat grew, and spelt could grow. Still, the absurdity of the opinion, more surprising than that of the same belief as to cheat, did not prevent its being very general where spelt was known. And to this was added another ridiculous and yet common belief, which served to spread these pests still more. This was, that spelt and cheat, being produced from wheat, did not spring at all from their own seeds—and therefore no care was taken by many persons to destroy seeds which they had no thought would germinate. Such folly and carelessness in a few farmers, and the danger not being enough feared by others, caused the pest to spread rapidly, and still more by the change of seed wheat from farms so infected to others. It was by a purchase of seed wheat from a crop so mixed, that my own farm was set with spelt, so as to be a serious evil for twenty years after.

When the cheat controversy was carried on actively in the agricultural papers in 1831 and 1832, I sent to Gideon B. Smith, esq. then editor of the American Farmer, a specimen of our spelt; and from him, for the first time, learned its botanical and its vulgar European name. It was the first time he had seen the plant, and had not known that it was in this country. Our correspondence on the subject drew forth these interesting facts from Gen. Th. Emory, that the plant was known on Kent Island, and only there (as he believed,) in Maryland; and not there until after the last war, when the British had possession of the island, and kept cavalry horses there for some time. This, added to the facts that at City Point, in Prince George county, nearly all the race horses imported from England had been landed, with the remains of their English provender, and that spelt was abundant in these two neighborhoods, renders it almost certain that in this manner the seeds were brought from England. My volume of the American Farmer for that year has been lost, and I here repeat the facts there stated from recollection; but believe that there can be no material variation, in that, or other circumstances that will be here added.

Though all the seeds of spelt cannot be removed from a crop of wheat, by the most laborious or wasteful fanning and screening, the greater part may be separated by throwing off with it as much or more of good wheat. Of such "tail-ends" of wheat, the refuse remnant of a crop in Prince George, very much mixed with spelt, some flour was made, and bread of it eaten by two negro men belonging to the farmer who raised the crop. They were both attacked the same night with such violent spasms, or convulsions, that their lives were despaired of. However, both recovered. Another farmer, who had part of his crop left, because much intermixed with spelt, though warned by knowledge of this occurrence, used the flour for his negroes, as only a small part of their food, and as he thought, cautiously enough to prevent any harm. Still, some of his slaves were made sick, and though much less violently, in such manner as to leave no doubt of the spelt being the cause. These proofs of the grain being poisonous convinced me of the fact, before having heard of it upon any other authority. My wheat left on hand because adulterated with spelt, was boiled to prevent the sprouting of the spelt, and fed cautiously to hogs. No evil effect was observed on them.

Whoever has not yet had his fields and wheat crop contaminated by this abominable weed, should use every care to prevent any of the seeds being introduced in purchased wheat or otherwise. If the injury has been already suffered, every care should be used to lessen it, by sowing only clean seed wheat, and preventing the increase of the growth of spelt. Making the land productive, and having the wheat to stand thick and vigorous, is the most certain mode of keeping down the growth of spelt when the seeds are actually in the land, or are necessarily sown with the wheat. And when the growth of wheat is thin and feeble, the spelt will be in proportion flourishing and productive. The same remarks apply to cheat. And hence it is that the wheat of bad and slovenly farmers, and on poor or unproductive land, is so generally believed to be changed to spelt and to cheat; while, under reverse circumstances, such conversions do not appear to take place, and perhaps the possibility of the conversion is even denied, by the raisers of these better crops.

Since writing the above, I have heard, from Richard Furt, esq., a well informed flour miller of Petersburg of long experience and extensive business, some facts in regard to spelt, which are important as confirmation of some of the views presented above. Mr. Furt, as a purchaser and miller, has been receiving and examining a considerable proportion of the wheat that has come to this market for about 40 years. He is confident that he never observed any grains of spelt in wheat brought for sale until in 1816, and then (as he well remembers) in a particular large crop of a farmer of Dinwiddie. Since, it has been gradually increasing in the samples of wheat in general; and now, more or less spelt is found in two out of three of all the wagon loads of wheat that come to this market. In Prince George, (the county adjoining Petersburg, and Dinwiddie,) where I suppose that spelt was first introduced from England, the crops of wheat were the most mixed with spelt at an early period of the time since 1816; but latterly and now, no neighboring county sends wheat entirely clear of spelt. The wheat of Lunenburg county, of all within its distance from Petersburg, Mr. Furt thinks is the least affected by the contamination. What gives value to the facts stated by Mr. Furt, in addition to his long experience and means for observation, is that, notwithstanding this and all other testimony to the contrary, he is still a believer in the convertibility of wheat to spelt—and supposes that spelt here was at first the product of degenerated wheat, and the degeneracy caused by poor land and bad tillage. E. R.

RYE GRASS—LOLIUM PERENNE.

Synonymes and provincial names.—*Lolium perenne*—*Rye grass*, and *Ray grass*, in England—*English greensward*, by some seedsmen in London and in the United States. For botanical description, see above.

This is a perennial grass, commonly cultivated and valued in England, sown either alone or mixed with red clover for mowing. It has been but little tried in this country, and was not enough

approved, from any known trial, for its culture to be continued. It is mentioned here merely because of its resemblance in appearance to *Lolium temulentum*, and for another reason, its having been recently introduced and spread abroad in this country (either from ignorance or designed deception of seedsmen) as "*English greensward*," and as such sown for a good yard or lawn grass. For this purpose its manner of growth is altogether unsuitable; and those persons who have thrown away their labor and expense in the trial, are additional examples of the many who have been deceived and put to loss by the application of improper names to grasses, which ought to be, and otherwise would be, well known by name as well as by qualities. E. R.

FATTENING SWINE.

From Eliott's Husbandry, 1747.

I find by experience the best time to fatten swine is to begin at the first of August, if you have old corn. Hogs will fat slowly in very cold weather: they will eat much and fatten but little: if you make a very warm house, they heat in bed and catch cold when they come out into the cold air.

To save corn, steep it in water or swill till the corn grows very soft; this opens the parts: give them the corn to eat and the water to drink in which the corn has been steeped: the hard dry corn, a great deal of it, passeth through them undigested; this is the hardest part of the corn and that which principally makes the flour. There is a tradition that if you feed one hog with corn, the dung of the first hog will fat another hog, and his dung a third. Although I believe the story to be fabulous, yet it serves to show that the sense of mankind is, that in the manner we feed swine, there is a great deal of loss.

I took the hint of steeping corn, from the advantage I once found by some corn I bought that had been shipwrecked, and lain in the water till it was grown soft.

Such is the difference in corn and in swine, that it is impossible to fix it absolutely and know certainly how much there is saved by this method. It is better than grinding, besides what we save in the toll and the time and charge of the carriage; for it is found by experience, that even bran, when steeped in water a long time, is much the better.

I asked an honest, and judicious neighbor of mine, who had leisure to try this method of steeping corn longer and with more exactness than I had done, how much he thought was saved by it? He said, at least one bushel in seven—he believed more.

Since the foregoing was written, a person of good credit informed me that there being in his neighborhood a dealer in horses, who was famous for skill in making horses fat in a short time; he desired the jockey to tell him how he did it: the secret was to mix Indian corn and oats together and soak it in water till it was soft; that in cold weather he steeped it in a cellar, that it might be kept from freezing.

My informant told me, he had made trial of it and found it did well, giving it to his horse in the same proportion as he was wont to do of dry provender.

SUMMARY OF NEWS.

Friday, September 3, 1841.

An individual named Thomas M. Harlup, has been committed to prison at Washington, on the charge of having been one of those concerned in the mob that insulted the President.—*Phil. Led.*

R. C. Knapp, brother of the Cashier of the Mineral Point Bank, has been arrested and held to bail in the sum of $120,000. This is the bank in which the Commissioners could find no money. Knapp was found to be in possession of about $100,000 in drafts, checks, certificates of deposit, bank bills, &c., belonging to the bank, most ingeniously secured under the blank or fly leaves of some books. The amount is supposed to be sufficient to render the bills of the bank worth 75 cents to the dollar.—*Ib.*

The greatest fall of water ever known in Charleston, came upon us on Tuesday (Aug. 23) afternoon and night—principally between 11 o'clock in the evening and daylight. The continuous roar of the rain was like the thunder of the ocean in a storm. The quantity of water which fell from 9 A. M. Tuesday to 9 A. M. Wednesday, we learn from the Citadel, was 7 24.100 inches. The actual period during which this deluge was pouring, was not over 7 hours. The cellars in all the lower situations of the city were flooded, some to the depth of two feet, and much loss was sustained by those who had valuable groceries in their cellars. The city drains in some places were burst by the press of water. The damage to the crops from this frightful flood cannot but be great, as there was every appearance that the rain was general, and it was also accompanied by considerable wind. The business prospects for the coming season are very gloomy. The health of the city, however, continues good—probably it was never better at this season, and we have now a fair prospect of escaping the visitation of yellow fever."—*Ch. Mercury.*

The bark Eugenia, from Vera Cruz, brought $81,000 in specie to New York. But no matter how much specie is brought into the United States by the course of trade, as much and more will as fast be sent abroad, by the necessary operation of the bank suspension and irredeemable paper policy.

The bill for distributing the proceeds of the public lands among the states has passed both houses of Congress. But by an amendment of the senate, its general and worst practical operation is restrained. This amendment provides that the distribution shall not take place when the tariff of duties is made to exceed 20 per cent. Thus the land distribution must either serve to keep down the exorbitancyof a protective tariff, or such a tariff will nullify the land distribution. The operation of the new bankrupt bill does not commence until next February. This will allow time for amendments at the regular session.

The revenue bill is still before Congress.

It is now considered doubtful whether the last bill to establish a national bank will ever, by passing the senate, reach the president. Should it be so however, his veto may be deemed certain—and a dissolution of the present cabinet is certain to follow.

United States bank stock sold this week in Philadelphia as low as 8½ dollars for the 100—but has since risen to 10½.

"Captain William K. Latimer, late commander of the United States sloop of war Cyane, has been sentenced by a general court martial to five years suspension, with loss of pay and rank, for cruelty and tyranny to his crew of the grossest kind."—Good! And sundry more such examples of deserved punishment are yet needed.

The Union Bank of Montreal (Canada) a swindling and bankrupt concern which had neither credit nor character, and was scarcely known of at home, had an agency office in the city of New York ostensibly to *redeem* its notes, but really, by that pretence, to get them into circulation, and then cheat the holders. This has just been done, by the redemption being declared at an end, and the notes becoming utterly worthless. This is merely doing *completely* and *throughout* what all suspending and irresponsible banks do in part, and to greater or less extent, in effect, if not by intention, according to their opportunities, and to the degree of submission of the community.

Frequent inquiries are made to know what has become of the assets of two or three of our swindling and broken moneyed institutions; to wit, the Philadelphia Loan Company, the Philadelphia Savings Institution, and the Schuylkill Bank. It is now some two years since these several institutions ceased to exist, and were placed in the hands of assignees for settlement; at least it was so with the two former. Promises were then made by the presumed honest men who took this duty upon themselves, that there would be a half or more of the amount due to creditors realized. But this, we are assured, has not been the case. The creditors, or at least some of them, and we presume all, have not received a cent, and that they ever will is a questson as much in the dark as it ever was. The affairs of the Schuylkill Bank are involved in equal mystery. The *very few* who have control are doing business in their own way, or are doing nothing, and the great body of the stockholders know not whether their stock is worth any thing or not.—*Ph. Ledg.*

By this morning's mails, Sept. 3.

A wonderful occurrence (if not a very elaborate and foolish hoax) has recently taken place in Davidson, Tenn. A shower of what seemed to be blood and finely divided flesh fell from a small red and low-flying cloud. The space sprinkled by the shower was nearly half a mile long and about sixty yards wide. It was principally over a tobacco field, and the leaves of the tobacco furnished specimens abundantly of the substance, and also showed the course of the shower and perpendicular direction of the descent. Portions of the substance had been sent to Professor Troost, to be analyzed. The editor of the Nashville Banner, who saw them, says "they *appear* to be animal matter, and the odor is that of putrid flesh."

Effigies of President Tyler have been publicly burnt, with every accompanying *solemnity* of insult, in Louisville Ky., and at several places in Ohio, on account of his veto to the first bank bill. So much the better for the president, and the cause for which he is thus insulted. Such procedure is only to be deplored as being disgraceful to our country, and tending to degrade the government abroad.

Private letters, received in New York, give some account of alarming disclosures being made in respect to the Union Bank of New Orleans. A correspondent of the Commercial says that "in addition to the over drafts previously known, it appears that about $800,000 more have been discovered;—one firm alone, Ogden and Southgate, having abstracted $100,000; another individual $50,000; and Mr. Woodruff, one of the directors, some $15,000. Every thing, however, connected with banking in this city is kept so secret that the public is left to conjecture the amount of the various defalcations." It was in agitation, it is said, to place an injunction on the bank.—*Phil. Ledger.*

Friday, September 10, 1841.

The steam-ship Britannia arrived at Boston on the 2d, bringing accounts from England 15 days later, to the 19th ult.

Great alarm has been produced throughout Great Britain of a failure of the wheat crop, in consequence of the cold and wet weather during harvest, so far as it had been heard from. Still, by private advices received here, accounts differ much as to the prospect. The price of wheat however was rising in England and the duty of course lessening. This must raise the price of grain in the United States.

"Accounts of commercial distress reach us from all parts of the country. Trade is in a deplorably depressed state; and failures in manufacturing districts, to amounts, are affairs of daily occurrence. From Manchester, Leeds, Bolton, Bradford, Glasgow and Paisley, we receive, by every post, harrowing details of the sufferings of the poor, thrown out of employment and obliged to subsist on an allowance of the coarsest food, falling short of what is allotted for the maintenance of convicted felons in our jails and penitentiaries."—*London Sun, 17th.*

It was reported by London papers that 15 ships of the line had been ordered to our coast on account of the McLeod affair. Doubtful.

"The Paris papers speak in gloomy terms of the harvest."

A most destructive fire has occurred at Smyrna. From 9 to 10,000 houses were burnt, including 8 Jewish synagogues and a number of Turkish mosques. From 30 to 40 persons lost their lives by this disaster, and more than 20,000 are left without food or shelter.

In a trial of speed on the Great Western Railway, (Eng.) the "Hurricane" locomotive passed over within two hours, which was at the rate of more than 60 miles an hour.

The price of cotton has declined.

Free Negroes.—In New Orleans and almost every town on the waters of the Ohio and Mississippi, measures are in progress to send off the free negroes, in consequence of the disturbances, murders and robberies, which have been committed or are alleged to have been committed by them.

Lynchers indicted.—"Judge Pryor, at August term of the Circuit Court, held in Grant county, Ky., called the attention of the grand jury to the *unlawful* execution of Maythe and Couch, who were taken out and hung by a mob. The Judge pronounced all unlawful and deliberate killing, murder. The executions that had taken place, were without trial, and under no law but the law of a mob, and all who were present, advising or aiding in the act, the law regarded as alike guilty. The jury entered upon the discharge of their duty, and returned into court with *nine bills of indictment of murder in the first degree*, against individuals concerned in the execution. The remarks of the judge in the charge to the Grand Jury show him to be a sound lawyer and a fearless public officer. It is to be hoped that the clergyman who so far disgraced his calling as to lend his official services to the atrocious ceremony is among the number indicted."—*Phil. Ledg.*

It seems we were mistaken, in acquitting all the officers of the Danville Bank of the robbery lately committed. The money (i. e. "promises to pay,") has been recovered, and the teller, Mr. Joseph Terry, has been arrested as the thief. Of course, as in all such cases, Mr. Terry was a *highly respectable gentleman.* Hereafter, to make amends for this one mistake of ours, whenever any bank robbery occurs, we shall take it for granted, until the contrary be proved, that the undetected thief learned his trade of dishonesty

behind the counter of the bank, and by executing its regular operations and spoliations on the community.

Another bank vault tapped and the leak discovered.—The Cape Fear Branch Bank at Raleigh has had a portion of its funds *appropriated* (the reader may supply any more appropriate word,) by the cashier, E. H. Wingate, to the *acknowledged* amount of about $10,000—and how much more, the directors have since been trying to find out. The first suspicion and his confession came together on last Monday, (6th,) and up to the 8th the deficit was ascertained to be about $12,000. Mr. Wingate was not only cashier, but head and chief of the Branch Bank, there being no president except of the mother bank at Wilmington. *Of course*, he was of the *highest respectability*. No suspicion had been excited; but the president of the mother bank, finding that the times were squally, and defalcations being brought to light plentifully, and even where least suspected, thought he would make a general tour of inspection to all his branches. The Raleigh defalcation was the first fruit of his investigation. The newspapers of Raleigh say not a word about the matter. Our information is derived from gentlemen just arrived from Raleigh, and who well know the facts as there reported and believed. Would it not be a good plan to have a general official search into the accounts and funds of all *unsuspected* banks? If it were done, our summary of news and the whole "Bank Reformer" to boot would scarcely be able to present all the interesting discoveries.

Another swindling financier caught.—"E. Whiting, late Cashier of the Galliopolis Bank, has been arrested at Lowell, Mass., and there awaits the requisition of the Ohio authorities.

The Augusta (Georgia) Chronicle of the 2d inst. says, that rumors are in circulation that two bank clerks in Columbus have decamped, being defaulters to an amount not known, but not over probably $100,000, nor less than $40,000. The Sentinel attributes all these delinquencies to the suspensions. The directors set an example of dishonesty in suspending payment, and it is but too readily followed and improved upon by their servants. Nearly all of the late robberies have been perpetrated upon suspended banks.

The Augusta Chronicle says—"The Columbus Enquirer contradicts the report published by us some days since, relative to the removal of the assets of the bank of Columbus across the river to Gerard, Ala. The Enquirer says—"We repeat the assurance, that the assets of the Bank of Columbus remain where its charter placed them, under the control of its able and responsible direction, who stand ready in good faith to discharge their obligations to the community and to the stockholders. "The bank of Columbus, and the Planters' and Mechanics' Bank, are both going on with their regular business as usual, redeeming their bills *with other current bank notes*. [A pretty mode of redemption truly! One broken and dishonored promise, redeemed by another just as bad!—Ed. F. R.] Their course in resisting the action of receivers has thus far proved not only wise but fortunate, to one of them at least. No receivers have, however qualified, or attempted in any manner to take control of any of our banks. Appointments were made which were not accepted, and there the matter ended, and so we presume will *stand ended*." [The plain English of all this is, that the broken banks of Georgia put at defiance not only the general law, but also the judicial decision which directed their assets to be taken possession of; "*no receivers have qualified*," and that is the way that the judgments of the court are nullified.—Ed. F. R.]

We learn that the state officers are in trouble about Wheeling notes, which are receivable for taxes, and which, nevertheless, stand at ten per cent. discount here. [Is it not 15 per cent?—Ed. F. R.] The result of this awkward state of things will be that the western folks will pour these notes into the state treasury; which will suffer a loss of one-tenth on its means: a thing which its resources, already cramped, will not admit of. Some action will, we believe, be attempted to avoid this consequence.—*Richmond Star.*

This is one of the beauties of banking. The people pay a tax of ten cents for every dollar of these Wheeling notes paid into the state treasury! This is truly republican—to tax the whole people of the state for the benefit of a few bank corporations. We heard the other day the case of a plain farmer, on whom a bank palmed off one or two hundred dollars in these depreciated Wheeling notes.—*Petersburg Statesman.*

The revenue bill has passed the Senate. The proposed duties on tea and coffee had first been stricken out.

The (old) United States bank finished at last!!! On the 4th. inst. it was announced that all the remaining effects of this institution had been assigned to trustees to wind up its affairs and pay its debts [if that be possible.] The stock, which had before recovered and gone above 13, immediately fell to $8.50 the share. (Since, on the 6th. it sold for 7.50.) And this, we suppose is the last of this most infamous and most powerful, and most predatory on private interests and injurious to general interests of all banks that have ever existed.

There are no less than 15 private shin-plaster bankers in Frederick, Md. engaged in manufacturing "money" for the "dear people."—*Balt. Sun.*

The President has been also burnt in effigy in St. Louis, and hung in effigy in Nashville, for his first veto. What is in store for the second?

THE SECOND VETO—By a private letter (of unquestionable authority,) written after the mail closed at Washington, we have just learned that the Veto of the President to the second bank bill (we beg pardon, "Fiscal Corporation") was sent in to Congress yesterday, and that the message was then in the printers' hands. *Laus Deo!* There will be no United States Bank established, (or even "Fiscal Corporation,) during the presidential service of John Tyler. Therefore the burners and hangers in effigy, &c. &c. will not succeed, unless they take to a more direct and *vital* remedy. The scheme which has been avowed, *to buy* John Tyler, will not answer; the only way to get rid of him, his objections to committing perjury, and his constitutional scruples, will be to kill him!

No mail from Raleigh, and of course no more particulars of the bank investigation than we learned 24 hours before.

At the Washington Navy Yard, (7th.) By the accidental explosion of a 32 lb. shell, filled with detonating powder (a new invention of Lieut. W. D. Porter,) Capt. Jacob Bright, the Master Armorer, was killed, and his body scattered in fragments.

An awful riot occurred at Cincinnati on the night of the 3d inst., by which several lives were lost, and many persons wounded. Its commencement was a quarrel and fight between a few negroes and whites, and in which one of the latter was mortally wounded. The whites assembled to the number of several thousand, attacked some of the houses of the negroes, who defended themselves with muskets. A cannon loaded with slugs was fired several times by the whites. The military finally quelled the riot, and order was restored.

The "Missourium," or skeleton of a double-sized mammoth, which has been exhibiting in the western cities, turns out to be a counterfeit, or at least so far

factitious as presenting a larger size than the well-known mastodon, of which this is in truth a specimen.

Friday, September 17, 1841.

It will be remembered, says the Philadelphia Times, that a book-keeper in the bank of Pennsylvania, named Smith, disappeared very mysteriously some time ago, with a large amount of the floating capital of that institution. The sum lost was at first stated to be $100,000, but within a few days it has been ascertained that the old gentleman carried off one more 0, making the snug sum of one million! The Bank is making some effort to recover this, but we don't know how. Smith is in Texas.

Another Bank Swartwouter.—The Albany Atlas says it has information that the teller of the Mechanics' and Farmers' Bank of Troy, named Jones, suddenly disappeared from the city, leaving his account minus about $10,000.

In addition to this, the Norfolk Herald publishes an extract of a letter from Columbus, Ga., dated the 3d inst., which gives the following information:—The Western Branch Bank of Georgia, at this place, closed to-day! Thomas Moore, the teller of the Bank of Columbus, has cleared out with about $75,000. He checked out the money of depositors by signing his name for them—"Thomas Moore, for A. B. C., &c."—*Phil. Ledg.*

The Augusta (Geo.) Chronicle of Thursday last says:—"Rumors have been afloat in this city, for a day or two, that two bank clerks in Columbus have decamped, being defaulters to an amount not known, but not over probably $100,000, nor less than $40,000."

The German Bank of Wooster, Ohio, has blown up, to the loss of holders to the amount of more than *one hundred thousand dollars!* This explosion falls with most severity, indeed almost entirely, on the farmers of the neighborhood, many of whom have exchanged almost their entire crop of wheat for the trash. Thus is the result of the labors of a whole year plundered from them in a moment. Almost the entire circulation was put afloat within the past two months, and, as would appear, for the express purpose of plundering the farmers of their crops. A correspondent, speaking of the scene presented the day succeeding the explosion, says:—"It has been a most afflicting spectacle since this morning, to see the crowd of poor mechanics and laborers around the bank, pleading for something in exchange for their faithless promises, that would procure the necessaries for the sustenance of their helpless families." A paper currency has its convenience, it is true, but whether losses like this do not render its cost more than it is worth, we will leave those swindled farmers, and those who are capable of sympathizing with them, to decide.—*Phil. Ledg.*

The Bank of Steubenville, (N. Y.) has made an assignment of all its effects, and will now wind up its affairs.

The Western Bank of Georgia, at Rome, Ga., has closed its doors.

Among several favorable circumstances in reference to our currency, we notice the unfavorable fact that almost all the packets which leave this country carry away with them large quantities of specie. Notwithstanding the New York press look upon this relieving of their banks of their specie as tending to strengthen them, we confess our dullness in not comprehending their reasoning, and are quite sure that a directly opposite course of treatment would strengthen ours.—*Phil. Ledg.*

The last London packet from New York took out more than $200,000 in specie.—*Balt. Sun.*

We observe, in the Philadelphia Ledger of the 14th inst., a call for a meeting of the "Anti-Charter Monopoly Association, No. 6," for the purpose of discussing the question, "Can we obtain specie enough, in the natural course of trade, to conduct all the business of the country, so as not to use the notes of chartered banks?" An invitation is extended to the public to attend and participate in the discussion.

Two companies of United States troops have moved upon the disputed territory of Maine.

The city of Cincinnati was under the dominion of the mob, in the riot stated last week, for more than 24 hours. The negroes, when subdued, were carried to prison, as much for their protection as for their offences. Their houses were torn down, and an abolitionist printing office destroyed, and also the property of another abolitionist. About 50 of the white rioters have been arrested.

The tenants of the Van Rensellaer property, near Albany, are again refusing to pay rent, and more trouble is commencing.

Lett, the Canadian refugee, who attempted to blow up a Canadian steamboat at the wharf at Oswego, and who escaped on his way to the states prison, has been retaken, and sent to suffer his imprisonment for 7 years.

Naval.—The Norfolk Beacon says orders are about to be given to have the frigate St. Lawrence, now on the stocks at the Navy Yard, Gosport, launched.

The second veto message of President Tyler arrived the next mail after our last week's publication. In tone and manner it is not so firm and decided as was to be desired. However, we trust the final result will not therefore be doubtful.

On the 11th inst., the Revenue Bill, and the Bill prohibiting the investment of government funds in state stocks, received the approval of the President.

The members of the "Harrison Cabinet," with the exception of Mr. Webster, sent in their resignations on Saturday last. On the same day the President nominated the following gentlemen:

Judge Upshur, of Virginia, Secretary of the Navy.

Justice McLean, of the Supreme Court of the United States, Secretary of War.

Hugh Legare, of South Carolina, Attorney General.

Walter Forward, of Pennsylvania, Secretary of the Treasury.

Charles A. Wickliffe, of Kentucky, Postmaster General.

Florida.—Advices from Col. Worth, received at the department of war on Saturday last, announce the surrender of Coacoochee's people, the seizure of the chief Hospitaka, with 15 of his chiefs and warriors, and the promised surrender of all his people, amounting to 320 more, on the 11th of this month.

The steamboats Patrick Henry and Rappahannock came in contact on the 9th inst., between Baltimore and Fredericksburg, Both boats sustained considerable damage.

The members of Congress, with the clerks, &c., have, during the present session, consumed *fifteen barrels of ink*, 83,000 quills, and 483 groce of steel pens. [How large a proportion of these has been sold?—Ed. F. R.]

Threatened general Indian war.—The North Western tribes exhibit much ill will towards each other. The Burlington (Iowa) Hawkeye states that the Winnebagoes have been for some time making extensive preparations for attacking the Chippewas on the north, and that the Pottowatomies have obtained the assent of 30 odd villages of the different tribes on the south and west, including the Pawnees and several

tribes on the other side of the Missouri, to engage in a war of extermination against the Sioux. They have sent the wampum to the Sac and Fox villages on the Des Moines, and the prospect of soon receiving their annuity only prevents them from joining the coalition. Gen. Chambers has promptly taken measures to put down hostilities between the tribes.

The Harrisburg (Pa.) Intelligencer states that there are at least 200 acres planted with tobacco in York county this season. The crop is said to look well, much better than any between Baltimore and Washington.

Important from Havana.—The correspondent of the Philadelphia Gazette, writing from Havana on the 25th of August, says that a rumor was circulating that England had demanded from the Spanish government a fulfilment of the treaty of 1828, for the suppression of the slave trade, and required the government of Cuba to give up all slaves imported since that date. Also, that 6000 troops were to embark immediately at Cadiz for Cuba, and that the fortifications of the island were to be put in a state of efficiency. It was reported, also, that the Canary Islands had declared themselves independent of Spain.

The "Extra Session" adjourned on Monday. The Senate was occupied the whole day in the consideration of executive appointments. In addition to the members of the new cabinet, given above, the following important appointments have been confirmed:

Edward Everett, to be minister to Great Britain.

Wm. Hunter, (now charge d'affaires,) to be minister to Rio de Janeiro.

Wm. Boulware, of Virginia, charge d'affaires to Naples.

James D. Doty, Governor of Wisconsin.

Bela Badger and Mr. Ritner have been rejected by the Senate. The appointment of Isaac Roach, as treasurer of the mint at Philadelphia, has been confirmed, vice Joseph Ritner, rejected.

Friday, September 24, 1841.

News of the arrival from England of two steamships, the Great Western and the Caledonia, has been received since our last week's publication.

The new parliament had met, and the Whig ministry had been defeated, by a majority of 91, and had consequently resigned. The forming of the new Tory ministry was confided by the queen to Sir Robert Peel, who will of course be its head.

A debate had taken place in the house of Commons, on the case of McLeod, in which it appeared that the British government were content to let things take their course, being assured of the ultimate discharge of McLeod. The previous rumors of war impending, on this score, had no foundation.

The prospect of the harvest in England was much more favorable, and of course that of continued high prices for wheat here less so.

The cotton market has been getting worse. Great losses are expected to fall upon the buyers, and shippers from the United States. There is great distress among the manufacturing population of Great Britain.

The war of Russia against the Circassians is pushed with vigor, but with very little success to the arms of the former power.

"The Stuttgard Gazette states, under date of Vienna, that the finances of Austria were in a most embarrassed situation, and that all commercial enterprise was completely paralyzed." [Austria is a paper money country.]

A German commercial firm, Essenwein and Co. which had houses in New York, Philadelphia and Liverpool, lately failed for $900,000 and the principal had absconded and gone to Europe before the explosion took place. We are sorry to learn that many tobacco dealers in Virginia will lose by this bankruptcy, and particularly the tobacco manufacturers of the smaller towns, who had trusted principally to this concern.

The executive of Virginia are in a difficulty, or have created one, about the Wheeling Bank notes (which had depreciated as much as 15 per cent. or more,) for taxes, and have the matter now under deliberation. The executive have no power in the case. The law has declared all the notes of the banks of Virginia receivable for taxes to the state—and so it must remain until that law be repealed, even if the depreciation of Wheeling notes were 50 per cent., and the sheriffs were to pay in the whole revenue (or its nominal amount) in those notes. We trust that the present lesson and loss to the state will be severe enough to compel the repeal of this general security-ship by the people for all bank notes of Virginia, even if it should be of broken and totally discredited banks.

"The public are cautioned by the Buffalo papers against issues from the Butler County Bank and Hamilton County Bank. They are represented as not worth a cent."

A New-Orleans paper says—"Intelligence has been received here that an individual calling himself John P. Caldwell has forged a letter of credit for $25,000 from the house of Maunsel White & Co. of this city, upon the banking house of Brown, Brothers & Co. in New York, which latter firm is a branch of the English firm of that name in Liverpool." He obtained the money.

"The New York American states that Caldwell, the man who committed the successful forgery upon Brown, Brothers & Co., of that city, also operated upon another house in the same way, and for the same amount. The agent in New York of the Liverpool house of Fletcher, Alexander & Co. was induced by a letter of credit similar in all respects to the one received by Brown, Brothers & Co. to advance to the same man Caldwell precisely the same amount, $26,000, upon the same number of bales of cotton. The rogue has succeeded in getting already about $52,000, and perhaps may have repeated the operation in other quarters. Both letters of credit were received by the same mail." [One of these amounts of $25,000, the financier chose to receive in southern paper, and had regular and correct checks on the Richmond banks which he drew in person.]

The Havre packet which sailed Sept. 16 from New York took out $240,000 in specie. So writes the New York correspondent of the National Intelligencer. And the New York American, another ultra bankite, reports that the whole amount of specie exported from New York to Europe during the first two weeks of the present month of September, was $718,443—of which $267,736 went to Havre, and $456,704 to London.

The following extract is from a letter from a gentleman in Baltimore who is well informed as to banking operations. It was written September 18, 1841. "There is probably no point in the United States, where there is such regular and systematic effort to *depreciate* its currency as in Virginia, considering the extent of the trade."

It has been ascertained, by a steam expedition sent by the British government, that the Euphrates is navigable more than 1000 miles; and by using that river for steamers and the Orontes, emptying into the Mediterranean, and only 45 leagues of easy land carriage between, that this new route to India will be greatly the most to be preferred. This information must have important effects on the interest and commerce of England, and the world.

The news from Canton (to April 20,) adds nothing material. Negotiations were still proceeding very slowly. No more warlike operations since the previous accounts.

It is rumored that the interest due on the bonds of the state of Maryland will not be paid on the first day of October. The treasurer of the state has not succeeded in borrowing the money required.—*Balt. Republican.*

A forgery of $20,000 has been discovered on the Merchants' Bank in Baltimore.—*Ib.*

The magazine near Lockport, New York, was bro ken open at night, and 65 kegs of gunpowder taken off by the burglars. This is another "premonitory symptom" of a "patriotic" or piratical movement on the Canada border.

By this morning's mails, (*Sept.* 24.)

As we feared, the effects of the late freshet in the Savannah river, have been very disastrous to the prospects of the river planters, and every day only but developes additional losses. As yet we have heard from a few farms near the city; on some of which nearly the whole cotton and corn crops have been covered in water, and are consequently destroyed, besides the loss of considerable stock that could not be got out in time to save them from destruction.—*Aug. Chron.*

The "Money Article" of the New York Herald, September 22, has the following passage:—"The money market here is now beginning to feel the effects of the suspension at the South, the operation of which upon bills we endeavored to exhibit yesterday. The failure of the cotton houses abroad, the precarious situation of the houses here, and the consequent discredit attaching to bills, have produced a similar effect upon sterling bills to that created in francs by the stoppage of S. V. S. Wilder, and specie has become very much in requisition for shipment; so much so, that many of the banks are selling their silver. Nearly $150,000 has changed hands this morning at ½ per cent. premium for shipment—one half the amount was disposed of by one bank."—"There will no doubt, be a good deal of specie go by the Great Western on Saturday. This is the result of southern suspension. If the banks of that section had paid specie, the surplus in this market would long since have spread itself over the south, and furnished the people with a currency."

More indications of border warfare.—Two British steamers, provided with cannon (contrary to the spirit of the treaty between Great Britain and the United States,) are moored between Navy Island and the Canadian shore. A cannon was fired at one of the vessels in the night, but did no damage. Another attempt was made on the night of the 9th, to blow up by gunpowder a lock of the Welland canal. The explosion had but slight effect.

Lord Sydenham, governor of Canada, died on Sept. 19, at Kingston, of lock-jaw produced by injuries suffered from a fall from his horse.

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